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DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA

# Oil and Gas Conservation Division

Thomas L. Judge, Governor





ANNUAL REVIEW FOR THE YEAR 1976

Relating to

### OIL AND GAS

Volume 20

### **BOARD OF OIL AND GAS CONSERVATION**

- R A. CAMPBELL, Chairman 1222 North 27th Street Billings, Montana 59101
- C. J. IVERSON, Vice-Chairman Whitlash, Montana 59545
- MILTON G. ANDERSON P.O. Box 73 Sidney, Montana 59270
- PAUL C BUNN Chester, Montana 59522
- JOHN P. MOORE P.O. Box 997 Cut Bank, Montana 59427



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### 1976 SUMMARY OF YEAR ACTIVITIES

Oil Produced	32,814,260
Oil Imported (Refined) Canadian - 23,496,125 Wyoming - 18,310,652	41,806,777
Oil Exported (Transporters)	24,185,668
Gas Withdrawals Natural 40,876,873 Associated 3,336,001	44,212,874
Averages: (366 days)  Oil Produced 89,656 Oil Imported 114,226 Oil Exported 66,081 Natural Gas 120,800	

### Board of Oil and Gas Conservation of the State of Montana

Thomas L. Judge, Governor

### **ADMINISTRATORS**

DONALD E. CHISHOLM, ADMINISTRATOR P.O. BOX 217

HELENA, MONTANA 59601

**DONALD A. GARRITY, ATTORNEY** 1400 11TH AVE. HELENA, MONTANA 59601

JUDSON D. SWEET, PETROLEUM ENGINEER 15 POLY DRIVE BILLINGS, MONTANA 59101

CHARLES G. MAIO, GEOLOGIST 15 POLY DRIVE **BILLINGS, MONTANA 59101** 



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JOHN P. MOORE P O BOX 997 **CUT BANK, MONTANA 59427** 

Administrative Office......325 Fuller Avenue, Helena, Montana 59601 Technical Office and Northern District Field Office......218 Main Street, Shelby, Montana 59474

### Annual Review for the Year 1976 Volume 20

ANNUAL REVIEW — MONTANA 1976

The production of natural gas in Montana was up from 43,622,600 MCF in 1975 to 44,212,874 MCF in 1976. This increase of 590,274 MCF is mainly attributed to the placing of shut-in as well as some newly developed gas wells on

Oil production for 1976 was maintained at near last years total output, 32,814,260 Bbls. as compared to 32,843,674 for 1975. This is largely due to the success of secondary recovery programs, particularly at Bell Creek Field. Powder River County, where production showed a steady increase over the last three months of the year.

There were 787 wells drilled in Montana in 1976, including 17 oil and 8 gas, new field discoveries, and 11 new pay or significant field extensions. A total of 248 exploratory wells resulted in 25 discoveries for a success ratio of 10.1%, up nearly 2% from last years exploratory success ratio of 8.2%. Of the 539 development wells drilled, 106 were completed as oil wells and 264 as gas wells for a success ration of 68.7%, a substantial success increase of 6.5% over 1975.

Total drilling in 1976 amounted to 58 less wells than in the previous year when Montana recorded its second best year with 845 completions. Although exploratory drilling this year decreased by only 9 wells, the greater difference in drilling activity was in infield drilling where active development programs in 1975 completed 588 wells as compared to 539 during 1976.

Exploratory and development drilling pursued the economic potential of the shallow pay zones in Choteau, Glacier, Hill, Liberty, Pondera and Toole counties of northwestern Montana. A total of 73 wildcats in this area resulted in 11 discoveries or extensions, 4 oil and 7 gas; and of the 281 development wells drilled, 162 were completed as gas producers and 43 for oil. The discoveries include a new gas pay from the Devonian Nisku formation at Kevin-Sunburst field, Toole County, significantly upgrading the potential of the Nisku as a major new gas reservoir in the

Considerable interest was also demonstrated in the shallow Bowdoin and Eagle gas sands along Bowdoin Dome and the Bearpaw Arch in Phillips and Blaine Counties of northcentral Montana. Of the 80 wells drilled in Phillips County 63 were completed as Bowdoin Sand gas producers, and 22 of the 69 wells drilled in Blaine County were completed as gas producers from the Eagle Sand.

The increase in exploratory drilling for the deep Madison, Devonian, Silurian and Red River oil pools in the Williston Basin portion of eastern Montana resulted in the successful completion of 14 new field discoveries, 1 new pay discovery and 2 field extensions. Development and exploration is continuing to increase in the Williston Basin and similar successes are indicated.

Drilling for added oil production from the Pennsylvanian Tyler sands along the central Montana uplift in Musselshell and Rosebud Counties progressed at a high rate. Completions in this area included 2 discoveries, 2 field extensions and 22 development producers.

Interest continues to grow along the Overthrust Belt in western Montana. Subsurface and surface geological interpretations indicate the possible existence of giant oil and or gas fields in this area similar to those immediately north of the state boundary. Aggressive exploratory research needed to delineate drillable prospects along this complex geological structure is in progress and should culminate in the drilling of one or more wells in 1977.

Large prospective areas of Montana, including the Overthrust Belt, are sparsely drilled and it is highly possible that major reserves remain to be found. However, a proper economic atmosphere and an energy policy with a minimum of restrictions and controls in support of expensive sustained exploration programs are necessary to find this much needed oil and gas.

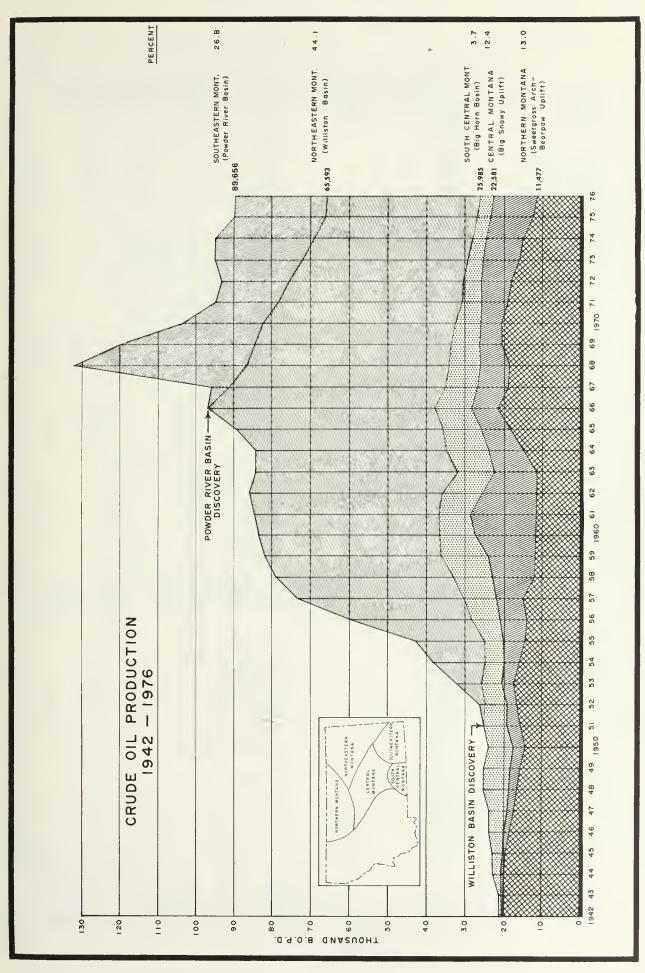
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# FIVE YEAR SUMMARY

	1972	1973	1974	1975	1976
Production, Northern Montana — Bbls.  South Central — Bbls.  Central — Bbls.  Williston Basin — Bbls.  Powder River Basin — Bbls.	6,646,908 1,742,749 2,817,045 16,361,771 6,335,666	5,948,826 1,515,088 3,238,967 15,735,703 8,181,598	5,464,319 1,432,528 3,334,759 14,939,292 9,383,064	4,551,324 1,318,779 3,954,024 14,312,685 8,706,862	4,200,539 1,246,005 4,063,897 14,496,380 8,807,439
TOTAL	33,904,139	34,620,182	34,553,962	32,843,674	32,814,260
No. of Producing Wells, Northern Montana South Central Central Williston Basin Powder River Basin	1,856 83 224 706 265	1,708 83 245 709 248	1,802 86 267 712 233	2,067 100 303 734 734	1,978 97 316 737 181
TOTAL	3,134	2,993	3,100	3,435	3,309
Average Daily Production/Well – BOPD,  Northern Montana  South Central  Central  Williston Basin  Powder River Basin	9.8 57.4 34.4 63.3 65.3	9.5 50.0 36.2 60.8	8.3 45.6 34.2 57.4 100.3	6.0 36.1 35.8 53.4 103.2	5.8 35.1 35.2 53.8 133.3
STATE AVG	29.6	31.7	30.5	26.2	27.1
Development Wells Drilled, Oil Wells	79 97 87 263	46 165 100 311	58 179 212 449	105 261 222 588	, 106 264 169 539
Exploratory Wells Drilled, Oil Wells	7 19 435 461	6 36 366 408	21 265 293	6 15 236 257	17 8 223 248
TOTAL WELLS DRILLED	724	719	742	845	787
TOTAL FOOTAGE DRILLED	2,300,075	1,834,288	2,173,519	2,467,838	2,826,301
AVERAGE DEPTH OF ALL WELLS	3,177	2,551	2,929	2,921	3,591

# SUMMARY OF DRILLING BY COUNTIES — 1976 STATE OF MONTANA

		Wildcats			Development		Total	Footage	Average
County	Dry	lio	Gas	Dry	liO	Gas	Wells	Drilled	Depth
Beaverhead	_						-	15 793	15 793
Big Horn	2		П				ı က	10,090	3,363
Blaine	19			28		22	69	144,207	2,090
Carbon	က			П	П	က	∞	53,048	6,631
Carter	7						2	5,883	2,941
Cascade	4						4	11,310	2,827
Chouteau	16			9		21	43	87,976	2,046
Custer	∞			П			6	38,877	4,319
Daniels	П						П	10,455	10,455
Dawson	2				П		က	30,640	10,213
Fallon				7	12	2	21	140,383	6,685
Garfield	4			2			9	26,159	4,359
Glacier	က		П	14	10	37	65	182,699	2,810
Golden Valley	2						2	10,805	5,402
Granite	П						1	5,473	5,473
Hill	9		1	22		20	49	95,047	1,939
Liberty	10			11	6	30	09	153,377	2,256
McCone	က			က	2		∞	59,473	7,434
Musselshell	21	П		21	7		20	212,305	4,246
Petroleum	က						က	8,814	2,938
Phillips	17					63	80	135,715	1,696
Pondera	10	П		П	12	12	36	75,109	2,086
Powder River	9			ಬ	2	ဘ	16	71,803	4,487
Richland	∞	11		ಬ	7		31	382,305	12,332
Roosevelt	2	2		က	ಬ		17	145,684	8,569
Rosebud	12	-		12	17		42	222,433	5,296
Sheridan	_	-		П	4		13	112,341	8,641
Stillwater	ಬ			4		2	11	31,885	2,898
Sweetgrass	က						က	21,034	7,011
Teton	က		П	П	က		<b>∞</b>	24,062	3,007
Toole	22		က	22	12	42	101	216,654	2,145
Valley	2					П	∞	44,575	5,572
Wheatland	က			5			2	19,765	3,953
Yellowstone	2			2	2	1	∞	20,192	2,524
TOTALS.	223	17	∞	169	106	264	787	2,826,301	3,591
						The second secon			



### GAS PRODUCTION DATA — 1976

Field	County	Producing Formations	1976 Production MCF
NATURAL GAS:			
		Blackleaf, Bow Island & Sawtooth	18,908
		Sawtooth & Sunburst	16,143
		Lakota & Morrison	1,486,330
		Eagle	77,203
		Sunburst, Swift & Blackleaf	242,461
		Bowdoin & Phillips	6,320,278
		Eagle	935,063
		Judith River & Eagle	51,218
Bullwacker Area	Blaine, Chouteau	Judith River, Eagle (Virgelle)	447,373
Canadian Coulee	Hill, Liberty	Sawtooth	842,314
Cedar Creek	Fallon	Judith River, Eagle	1,753,128
		Eagle	105,860
Conrad Butte	Pondera, Toole	Blackleaf, Bow Island & Dakota	86,879
		Blackleaf, Cut Bank & Madison	4,366,623
		Eagle, Frontier, Greybull	728,593
		Bow Island, Swift	80,658
		Blackleaf, Sunburst, Sawtooth, BowIsl.	171,032
		Judith River & Eagle (Virgelle)	112,979
		Bow Island, Madison	96,36
[ardin	Big Horn	Frontier	28,148
Geith Block	Liberty	Bow Island, Sawtooth	999,87
		Sunburst, Swift, Sun River & Nisku	391,85
Cicking Horse	Toole	Sun River	177,70
Kinyon Coulee Area	Toole	Bow Island	67,24
		Kf, Ke, Kve, Ktc	649,04
iscom Creek	Custer	Shannon	317,68
Middle Butte	Toole	Blackleaf	17,66
		Frontier	40,73
		Madison	154,68
		Lakota	22,90
		Judith River	52,74
		Shannon	730.99
		Judith River, Claggett, Eagle & Virg.	490,64
		Judith River & Eage	553,45
		Eagle, Virgelle	1,379,32
noce Coulee	Liborty	Bow Island	11,53
		Greybull	34,60
South Dovon	Toolo	Bow Island	156,36
		Bow Island	65,00
			61,65
Sign Pidge	Plaine Uill	PhillipsJudith River, Eagle	14.781.61
Iger Muge	Liberty Tools	Sunburst	
Itania	Tibouts	Ellis Courtooth Madison	101,72 $273,23$
Voot Dutte	Tools	Ellis, Sawtooth, Madison	
			386,99
	Liberty	Bow Island, Kootenai, Swift	989,96
SUBTOTAL Associated Gas:			40,010,01
		Muddy	524,33
		Interlake, Red River	488,50
		Tensleep	369,66
		Red River	446,21
		Red River	23,36
		Red River	1,00
		Tyler	2,25
Aiddle Sioux Pass	Richland	Red River	31,53
		Red River	36,35
	Dawson, Prairie, Fallon &	Interlake, Red River	508,34
20.441	Wibaux		
		Sunburst	500 41
cieniand	Richland, Roosevelt		520,41
loux Pass	Richland	Mmc, Si, Orr	102,24
			60,81
umatra	Rosebud	Tyler	160,91
ule Creek	Roosevelt	Nisku	59,88
COTAL ASSOCIATED GAS			3,336,00
TOTAL GAS PRODUCED -	<b>-</b> 1976		44,212,87
Natural Cas Imported	Canada MCE 24.024.720	Natural Gas Exported: Midwest States MCF	13,185,0
Natural Gas Imported:	Canada MCF 34,934,730		
TOTAL Imported	Wyoming MCF 379,074 MCF 35,313,804	Canada (Couts) MCF TOTAL Exported MCF	43,9 13,229,0

# BARRELS OF CRUDE OIL REFINED IN MONTANA — 1976

Fields	OIL CO.	CONTINENTAL OIL CO.	COMPANY	FARMERS	PHILLIPS PETR CO	TESORO PETP CO	WESTCO	10141
Big Wall Cat Creek Cut Bank	57.285	65,089 27,049		82,759	1,022,602			65,089 1,132,410
Devil's Basin Elk Basin Flat Coulee		440,511	340,214	316,599			1,255,077	1,312,362 $316,599$ $780,725$
Fed & George Creek Ivanhoe	202,345	30,079			106,765		120,539	120,539 309,110 30,079
Keg Coulee Kelley	000	126,244	15,344 34,355	188,125 25,055				188,125 166,643 34,355
Lodge Grass Mason Lake	909,006	7,286						305,829 7,286
Melstone Pondera				14,709	i c			14,709
Ragged Point Rosebud		122,379 69.422			165,331			165,331 122,379
Richey, Southwest Snyder		и 1 со				24,980		24,980 24,980
Sumatra & Stensvad Tule Creek & Others		2,202, 947,795	601,534	532,412		200 012		5,502 2,081,741
Vaux				7,431		718,030		7,431
Voit Whitlash					971 055	215,590	000	215,590
Winnett Junction Wolf Springs			13,262	33,128	241,933		30,363	272,518 33,128 13,269
Total Montana Oil Canadian Oil Imported Wyoming Oil Imported	565,459 657,534	1,845,684 11,125,216 4,494,776	1,004,709 5,818,126 7,719,234	1,200,218 5,353,950 6,096,642	1,536,653 539,447	928,606	1,406,179	8,517,508 23,494,273 18,310,659
TOTAL Montana, Canadian & Wyoming Oil	1,222,993	17,465,676	14,542,069	12,650,810	2,076,100	928,606	1.406.179	50.399 433
PERC	PERCENTAGE OF CRUD	E OIL REFIN				AVERAGE BAR	AVERAGE BARRELS PER DAY	
Montana	Canada		Wyoming		Montana	Canada	Wyoming	Total
Year: 1974 19.40% Year: 1975 18.56% Year: 1976 16.93%	35.79% 40.28% 46.69%		46.81% 41.16% 36.38%		25,537 24,463 23,272	44,487 53,077 64,192	61,627 54,237 50,029	131,651 131,777 137,493
	1972	REF 1973	REFINING FIVE YEAR COMPARISON 1974	AR COMPARISC	1975	19	1976	
48,	48,464,721	50,967,206	48,052,776	9,776	48,098,535	50,32	50,322,433	

SUMMARY OF	SECONDA	ARY REG	COVERY	PRO	JECT	S-JAN	UAF	RY 1, 1977
Field, Formation	Operator	Type of Project	Injection Pattern	Oate Injections Commenced	Comulative Injections 1000's Bbls, or MCF	Oec. 1976 Avg. Dally Inj. Rate Bbls. or MCF	No. of Inject I Wells	
Ash Creek, Shannon	Mc De rmot t	Waterflood	Peripheral .	10-15-64	1,077	169	3	Parkman
Bell Creek, Unit "A", Muddy	Gary	Waterflood	Peripheral	7- 1-70	75,000	36,471	31	Madlson
Bell Creek, Unit "B", Muddy	Gary	Waterflood	Peripheral	10- 1-70	21,252	9,610	12	Madison
Bell Creek, Ranch Creek Unit, Muddy	Gary	Waterflood	Peripheral	7- 1-71	25,500	10,791	11	Madison
Bell Creek, Unit "C", Muddy	Gary	Waterflood	Periphera1	12- 1-71	11,375	8,452	6	Madison
Bell Creek, Unit "O", Muddy	Gary	Waterflood	Peripheral	8-72	14,300	8,813	12	Madison
Bell Creek, Unit "E", Muddy	Gary	Waterflood	Peripheral	8-72	10,600	7,076	16	Madison
Big Wall, Tyler B	Texaco, Inc.	Waterflood	Per ipheral	8-20-66	18,100	4,863	2	Produced, Amsden & Tyler
Blackfoot, Cut Bank	Croft	Waterflood	Random	11-76	012	200	2	Madison
Border, New, Cut Bank	BG&O Co.	Waterflood	Random	6- 1-73	232	183	1	Madison
Border, Old, Cut Bank	8G&O Co.	Waterflood	Random	6- 1-73	622	378	4	Madison
Bowes, Sawtooth	Texaco, Inc.	Waterflood	Random	5-23-61	7.500	10,602	4	Madison
Cabin Creek, Siluro-Ord.	She11	Waterflood	Semi-Peripheral	6-12-59	157,400	33,128	30	Produced & Fox Hills
Cat Creek, East Dome, Swift	Moss	Waterflood	Semi-PerIpheral	7-30-70	368	252	4	Third Cat Creek
Cat Creek, (Unit 1), 1st & 2nd CC	Farmers Union	Waterflood	Semi-Peripheral	10-10-62	11,045	1,972	7	Third Cat Creek
Cat Creek, (Unit 2), 1st & 2nd CC	Farmers Union	Waterflood	Semi-Peripheral	12- 1-59	17,745	1,030	6	Third Cat Creek
Cat Creek, Mosby, Swift	Farmers Union	Waterflood	Random	7-67	3,818	1,191	4	Third Cat Creek
Cat Creek, Mosby, Amsden	Farmers Union	Waterflood	Random	6- 1-71	830	420	1	Third Cat Creek
Cut Bank, Marena, Cut Bank	8G&0 Co.	Waterflood	5-Spot	6-72	1,673	1,021	8	Madison
Cut Bank, Tweedy, Cut Bank	8G&0 Co.	Waterflood	5-Spot	6-72	804	249	3	Madlson
Cut Bank, NE, Cut Bank	Texaco, Inc.	Waterflood	5-Spot	6- 2-63	13,235	810	5	Madison
Cut Bank, NW. Cut Bank	Phillips	Waterflood	5-Spot	1-30-62	15,000	1.717	15	Madison
Cut Bank, SC, Cut Bank	Union	Waterflood	5-Spot	5-63	32,072	6,326	47	Madison
out Bank, SE, Cut Bank	Texaco, Inc.	Waterflood	5-Spot	4-62	52,051	7,939	49	Madison
ut Bank, SW, Cut Bank ut Bank, Lander "A"	Phillips Phillips	Waterflood Waterflood	5=Spot Random	9-62 4-65	76,000 1,475	17,252 189	87 2	Mad i son Mad i son
ut Bank, Lander	Texaco, Inc.	Waterflood	Random	7-64	7,382	1,484	5	Eagle
ut Bank, McGulnness, Moulton	Unlon	Waterflood	Random	12-62	4,000	920	1	Madison
ut Bank, Cut Bank	Tesoro	Waterflood	5-Spot	9- 1-71	3,346	2,109	20	Madison
ut Bank, Two Medicine, Cut Bank	Hiami	Waterflood	Random	12-67	40,557	4,898	74	Had I son
ut Bank, Moulton, Moulton	Union	Waterflood Gas Injection	Random Random	11 <b>-6</b> 9 5 <b>-</b> 15-71	15,832 Shut-in	12,789 0	6	Water Inj. into Madison Gas Inj. Into Moulton
wrling, State, Moulton	8G&0 Co.	Waterflood	Random	2-67	2,467	279	1	Madison
arling, NE Unit, Moulton	Ralph Fair	Waterflood	Random	2-68	4,821	1,156	2	Produced Water
arling, South Swenson, Moulton	BG60 Co.	Waterflood	Random	2-67	7,383	594	3	Madison
wyer, Ratcliffe	Phillips	Waterflood	Peripheral	10-68	1,487	358	5	Madison
Ik Basin, Embar-Tensleep	Amoco	Waterflood	Random	12-72	2,278 H	54 MCI		Produced Gas
ik Basin, Frontier	Amoco	Waterflood	Random	1926	2,735	1,326	2	Madison
Ik Basin, Unit 2, Tensleep	Amoco	Waterflood	Random	1949	2,171	0	0	Produced Water
lk Basin, Madison	Amoco	Waterflood	Peripheral	1962	59.885	12.816	8	Produced Water
							2	Madison
Ik Basin, NW, Tensleep	Atlantic-Richfield	Waterflood	Semi-Peripheral	5-76	4,333	1,947 778 MCI	_	
airview, MW Unit, Red River	Superior	Gas Injection	Crestal	10-25-67	2,857 H			Produced Gas
lat Coulee, Swift	Phillips	Waterflood	Peripheral	2- 1-72	3,525	4,216	15	Eagle
lat Lake, Ratcliffe	Chevron	Waterflood	Random	6- 1-71	13,000	5.934	11	Produced Water
rannie, Tensleep	Continental	Waterflood	Random	9-70	2,090	775	1	Produced Water
red & George, Sunburst	Fulton	Waterflood	Random	7-70	15,140	7,320	2	Madison & Eagle
ias City, Red River	She11	Waterflood	Semi-Peripheral	10-31-69	8,500	3,276	7	Mission Canyon
oose Lake, Ratcliffe	Cotton Petroleum	Waterflood	Semi-Perlpheral	1-73	4,706	2,561	2	Produced Water
im Coulee, Tyler B	McAlester Fuel	Waterflood	Semi-Peripheral	6- 1-72	4,876	3,580	5	Third Cat Creek
eg Coulee, NW Unit, Tyler B	Ada 0il	Waterflood	Semi-Peripheral	8-31-66	5,053	410	1	Madison
eg Coulee, East, Tyler	Continental	Waterflood	Sem1-Peripheral	12-24-69	3,463	271	2	Third Cat Creek
eg Coulee, South, Tyler	BG&O Co.	Waterflood	Semi-Peripheral	1- 1-70	2,207	1,194	2	Madison
elley, Tyler	McAlester Fuel	Waterflood	Random	7-69	1,907	882	2	Third Cat Creek
evin-Sunburst, Madison	Lon Crumley	Waterflood	Random	9-63	0	0	2	Madison
evin-Sunburst, Madison	8G&O Co,	Waterflood	Random	8-64	6,208	1,835	9	Madison
evin-Sunburst, Madison	Texaco, Inc.	Waterflood	Sem1-Peripheral	8-64	8,823	1,216	10	Madison
Ittle Beaver, Red River	Shell	Waterflood	Semi-Peripheral	8- 7-66	25,220	6,342	13	Mad1s on
Ittle Beaver, East, Red River	Shell	Waterflood	Semi-Peripheral	4-65	10,054	1,657	6	Madison
ookout Butte, Red River	She11	Waterflood	Semi-Perlpheral	4-67	20,966	5,254	11	Minnelusa
ookout Butte, Madison	Shell	Waterflood	Semi-Peripheral	2-69	2,058	690	1	Minnelusa
onarch, Silurian	She11	Waterflood	Random	12- 1-73	104	0	3	Siluro-Ord,
Pennel, Red River	She11	Waterflood	Random	6-28-69	52,446	24,427	46	Oakota and Produced
ine, South, Red River	She11	Waterflood	Semi-Peripheral	3-59	138,103	26,224	32	Fox Hills and Produced
lne, North, Red River	She11	Waterflood	Semi-Peripheral	3-68	15,182	4,326	10	Lodgepole
richard Creek, Sumburst	Fulton Producing	Waterflood	Random	4-73	230	0	0	Eagle
agged Point, Tyler	BG60 Co.	Waterflood	Semi-Peripheral	12- 3-66	6,380	365	4	Third Cat Creek
	Union	Gas Injection	Random	8-61	4,537 M	490 HC		Gas Injection
leagan, Madison		Waterflood		6-65	10,716	2,679	5	Madison
led Creek, Cut Bank	Exxon		5-Spot				,	Fox Hills
ichey SV, Interlake	Atlantic-Richfield	Waterflood	Random	12-65	2,238	175		
itensvad, Tyler	Ada 0il	Vaterflood	Semi-Peripheral	2-63	27,401	3,564	7	Madison
umatra, West, Tyler	Continental	Waterflood	Semi-Peripheral	10-68	15.575	7,386	9	Madison
iumatra, Central, Tyler	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	54,632	25,778	16	Madison
iumatra, NE, Tyler	Texaco, Inc.	Waterflood	Semi-Peripheral	9-16-69	3.924	1,901	7	Madison
iumatra, SE, Tyler	BGEO Co.	Wat erflood	Sem1-Peripheral	12- 1-69	8,189	3,512	7	Madison
Sumatra, Grebe, Tyler	Farmers Union	Waterflood	Random	6-16-75	157	391	1	Third Cat Creek
dlllow Creek, North, Tyler 8	Resources Investment	Waterflood	Random	6- 1-72	120	0	1	Produced

### OIL AND GAS DISCOVERIES IN 1976

County	Operator-Well Name and Location	Field	Total Depth	initial Potential Oil, B/O Gas,MCF	Producing Formation	Oate Completed
Big Horn	West Gas, Inc., Kincaid 3-14, C NW# 14-15-32E	Unnamed	1,250	Shut-In	Howry (Big Elk)	12- 8-75
Glacier	Oamson Oil, Tribal 8-1, SE NW 2-35N-7W	Unnamed	2,723	Shut - I n	Bow Island	8-16-76
Hi11	011 Resources, Bangs 28-15, SW SE 28-36N-8E	Unnamed	2,380	Shut - In	Bow Island	2-18-76
Musselshell	True 011, Hougen 44-14, C SE SE 14-10N-29E	Unnamed	4,610	214	Tyler	9-25-76
Pondera	Placid Oil, Copenhaven I, NW NE 32-27N-2E	Unnamed	1,996	Shut-In	Swift	8- 3-76
Richland	Pennzoil, Nevins 1, NE SE 9-23N-57E	South Fork	12,490	110	Red River	5-17-76
	Ensearch Explor,, Gartner 1, NW SW 23-23N-58E	Vaux	12,561	93	Red River	5- 4-76
	Shell 0:1, BN 21x25, NE NW 25-23N-59E	Big Bend	12,740	189	Red River	4-29-76
	Pennzoil, Watts 1, C NE NE 21-24N-59E	North Fork	12,780	163	Red River	6- 9-76
	Farmers Union, Edeburn 5-24, SW NW 24-25N-54E	Charlie Creek	11,820	95	Nisku	8-26-76
	True 011, BN 42-1, NW SE NE 1-25N-56E	Unnamed	12,669	720	Red River	11- 4-76
	True 011, McGinnis 44-1, C SE SE 1-25N-57E	Unnamed	12,720	73	Red River	11-27-75
	True 011, Delaney 41-4, SE NE NE 4-25N-58E	Four Mile Creek	12,616	50	Red River	10-10-76
	Luff, State 1-27, NE NW SW 27-26N-57E	Middle Sioux Pass	12,770	235	Red River	2-14-76
	Helmerich & Payne, Anderson 1-32, NE Nw 32-26N-58E	Unname d	12,630	165	Red River	12-14-76
	R. L. Burns, Montana-Federal 1, SE SW 24-27N-55E	Boulder	11,962	1,203	Ouperow	1-12-76
Roosevelt	True 011, State 42-20, SW SE NE 20-28M-56E	Unnamed	12,090	440	Red River	10- 1-76
	Farmland Int'l., Jacobsen 2-13, SE MW 13-30N-57E	Unnamed	12,353	120	Red River	10-29-76
Rosebud	True 011, 71 Ranch Co 42-10, C SE NE 10-12N-33E	Breed Creek	4,990	192	Tyler	9- 5-76
Sheridan	Bomac Exploration, Miller 1, SE NW 28-33N-57E	0 a gma r	11,430	40	Red River	10-10-76
Teton	Oamson 011, State 1, SE NE 17-27N-7W	Unnamed	3,000	Shut+In	Bow Island	12- 9-76
Toole	Jerry Branch, Flesch I, NE NE NW 35-34N-2W	Prairie Oell	1,330	70	Swlft	1-29-76
	True Oil, Tomayer 43-29, NE SE 29-35N-2E	Unnamed	2,190	Shut-in	Bow Island	11-12-76
	True Oil, Holtz 33-22, C Nw SE 22-37N-2W	Unname d	2,265	Shut-in	Sumburst	12-23-76
Yellowstone	West Gas, Barber 5-8, NE SW NW 8-3S-25E	Unnamed	993	780	Oakot a	8-29-76
	SIGNIFICANT E	XTENSIONS 1/ AND NEW PA	LY ZONES Z/ IN	1976		
Glacier	Oamson Oil, Tribal 5-6, NE SW SW 2-37N-7W	Reagan 2/	2,800	Shut - In	Bow Island	1-22-76
Liberty	Western Natural, Blair 1-3, NW SW SE 3-34N-4E	Grandview 1/	2,818	14	Swift	10-28-76
	Burlington Northern, Blair 22-23, Nw SE Nw 23-34N-4E	Horse Creek 1/	2,660	42	Swift	6- 9-76
	Rossmiller, Mesch 33-17, C NW SE 17-36N-4E	Middle Butte !/	1,871	188	Sunburst	12-12-76
Musselshell	Cardinal Orilling, Hamilton 6-10, NE SE Nv 10-10N-27E	Unnamed 1/	3,860	30	Tyler	8- 3-76
	McAlester Fuel, BN 11-5, C SW NW 11-10N-27E	Unnamed 1/	3,975	425	Tyler	6-27-76
Phillips	Midlands Gas, State 16-71, SE Nv 16-37N-31E	Bowdoin 1/	1,844	450	Bowdo I n	9-10-76
Richland	Pennzoil, Sjostrom 1, NE Nw 15-25N-57E	Sioux Pass 1/	12,873	143	Red River	11-16-76
	Luff, Martin 1, NE SE 1-26N-57E	No. Sloux Pass 1/	12,530	365 488	Red River	2- 1-76
	Luff, Federat 1-8, SE SW 8-26N-58E	No. Sioux Pass 2/	12,643	125	Nisku	2-22-76
Toole	Energy Reserves, Bashor 1, NE NE 34-35N-1W	Kevin-Sunburst 2/	3,370	1,400	Nisku	1-13-76

Field, Formation, Age	4.5	No. Prod.	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
ALMA Blackleaf (L. Cret.) Bow Island (L. Cret.) Sawtooth (M. Jur.)			Structural Strat.	Depletion	State-wide.	None
ANTELOPE Swift (U. Jur.) Kootenai (L. Cret.)		4 4	Structural	Water Drive	(Listed as part of Cat Creek Field.)	None
ARCH APEX Bow Island (L. Cret.) Gas Swift (Jurassic) Gas Swift (Jurassic) Oil	(Shut-in)	∞ m 4	Strat. Strat. Strat.	Volumetric Volumetric Volumetric	330' from legal subdivision; 2400' from any other drilling or producible gas well producing from the same reservoir; 75' topographic tolerance. (Order 4-60.) (Sometimes called Colorado Blackleaf pool.) (Swift) Statewide.	None
ASH CREEK Shannon (U. Cret.)		ო	Structural	Partial Water Drive and Depletion	Spacing waived within utilized portion of field except no well may be drilled closer than 660' from unit boundary. (Order 4-65.)	Waterflood started October, 1964. (Orders 22-64, 15-66.)
BAINVILLE Red River (Ord.)		-	Structural- Strat.	Depletion- Water Drive	State-wide.	Produced water disposed into Red River formation. (Order 7-A-75)
BANNATYNE Swift (U. Jur.)			Structural	Comb. Water Drive and	Center of 10-acre tracts, 50' topographic tolerance. Commingling permitted. (Order 20-58.)	75). Pilot waterflood of Swift susnended in 1963
Sun River (U. Miss.)	(Shut-in)	œ		Volumetric		susperiored III 1905.
BEARS DEN Sunburst (L. Cret.) Gas Swift (U. Jur.) Oil Sawtooth (Jur.) Gas		e e −	Structural Gas Cap Drive	Depletion and	State-wide.	None
BELL CREEK Muddy (L. Gret.) Oil & Gas Gas	17	176	Strat.	Depletion	Originally 40-acre spacing units with location 660' from unit boundary with 150' tolerance for topographic reasons only. (Order 37-67, 39-67, 50-67, 1-69, 17-70.) Field now unitized.	Six areas unitized (Unit "A", "B", Ranch Creek, "C", "D", and "E".) Floods used Madison water. (Orders 7-70, 23-70, 8-71, 26-
BELL CREEK SOUTHEAST Muddy (L. Cret.) Gas		4	Strat.	Depletion	160-acre spacing units, wells 660' from spacing boundary. (Order 31-72.)	71, 35-71, 36-71.) None
BENRUD Nisku (Dev.)		7	Structural	Water Drive	160-acre spacing units with permitted location within a 1320' square in center of quarter section. (Order 6-65.)	Water disposal into Judith River formation. (Order 64-62.)

Field, Formation, Age	Prod. Wells	Iype I. of Is Trap	Probable Drive Mechanism	Spacing regulations, Field Rules, and Remarks	Water Disposal
BENRUD, EAST Nisku (Dev.)	ဗ	Structural	Water Drive	Same as Benrud Field. (Order 6-65.)	Water disposal into Judith River formation. (Order 64-62, 32-66.)
BENRUD, NORTHEAST Nisku (Dev.)	-	Structural	Water Drive	Same as Benrud Field. (Order 6-65.)	Water disposal into Judith River
BERTHELOTE Sunburst (L. Cret.) (S	(Shut-in) 1	Strat.	Depletion	40-acre spacing units with well no closer than 330' from lease or property line and no closer than 660' between wells. (Order 18-66.)	formation. (Order 32-66.) None
BIG BEND Red River (Ord.)	-	Structural	Water Drive	Refer to Rule 203 (Order 16-71, Docket 14-71.)	:
BIG COULEE 3rd Cat Creek (L. Cret.) Gas Morrison (U. Jur.) Gas	ເບ ←	Structural Structural	Water Drive Water Drive	State-wide.	None None
BIG GULLY L. Tyler (Penn.)		Strat.	Depletion	State-wide.	
BIG MUDDY CREEK Interlake (Sil.) Red River (Ord.)	- m	Structural	Water Drive	One well per 320 acre spacing unit with well no closer than 660 feet from boundary of four east-west units. (Order 4- 75.)	None None
BIG ROCK Blackleaf (L. Cret.) Gas	9	Strat.	Depletion	State-wide.	
BIG WALL Amsden (Penn.)		Structural	Water Drive	Spaced by old state-wide spacing; 330' from lease or	Previous disposal into Tyler "A"
Tyler (Penn.) (S	(Shut-in) 13 (Shut-in) 4	Struct Strat.	Depletion	property line, 990 between wells in same reservoil. (Older 12-54.)	Stopped III 1901. Waterflood of Tyler "B" sand started August, 1966. (Order 22-66.)
BLACK COULEE Eagle (U. Cret.)	4	Structural- Strat.	Water Drive	One well per 320-acre spacing unit, two adjacent quarter sections, direction operator's option. Wells to be at least 990' from unit boundary. (Order 6-73.)	None
BLACKFOOT Cut Bank (L. Cret.) Sun River (Miss.)	7 (Shut)in) 1	Strat. Structural	Depletion Water Drive	One well only per 40-acre spacing unit, 300' tolerance from center of spacing unit. Dual completion in Cut Bank and Madison with administrative approval. (Order 3.57.)	Waterflood started November, 1976. (Order 34-76.)
BLACK JACK Sunburst (L. Cret.) Gas Swift (U. Jur.) Gas & Oil Blackleaf (U. Cret.) Gas	010	Strat.	Depletion	One gas well per 160-acres, no closer than 660' from boundary of each unit. (Order 3-69.) State-wide spacing. Order 3-69 amended to include Blackleaf in spacing and field rules for gas. (Order 4-74.) Blackleaf gas pooled (Order 3-75.)	None

Field, Formation, Age	No. Prod.	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
BORDER Cut Bank (L. Cret.) Oil & Gas	01	Strat.	Depletion	Oil: Unitized into New and Old Border fields. Unitized 6-1-73. (Orders 8-73, 9-73.) Gass: 330' from boundary of legal subdivision. 2,400' between wells in same formation on same lease. 75' topographic tolerance. (Order 7-54.)	Waterflood approved. (Orders 8-73, 9-73.)
BOULDER Duperow (Dev.)	-	Structural	Water Drive	Refer to Rule 203 (Order 16-71, Docket 14-71.)	None
BOWDOIN Bowdoin & Phillips sands in Colorado Shale (U. Cret.) Gas (Shut-in) *Gas wells outside boundary.	347 *69 t-in) 69	Structural	Volumetric	One well per quarter section not less than 1000' from lease boundary or less than 2000' from any gas well in same horizon. (Order 29-55.) Unitized 1958. Delineated: (Order 3-72.)	None
BOWES Eagle (U. Cret.) Gas	26	Structural	Volumetric	660' from boundary of legal subdivision, 1320' from other wells in same formation. 75' topographic tolerance. (Order 23-54.) Order 23-54 amended by establishing 160-acre Eagle spacing units in Sec. 5, 6, 7, 8, 17, 18-31N-19E. (Order 44-75.)	None
Sawtooth (M. Jur.) Oil (Shut-in)	52 t-in) 19	Structural	Partial Water Drive	330' from lease or property line, 990' between wells in the same formation. (Order 13-54.)	Pilot waterflood initiated in 1961 and expanded to fieldwide waterflood in 1965. (Order 6-61.) Water from Madison.
BRADLEY Sun River (Miss.) (Shut-in)	t-in) 1	Structural	Water Drive	State-wide.	None
BRADY Sunburst (L. Cret.) (Shut-in)	(-in) 3	Strat.	Depletion Partial Water Drive	10-acre spacing units with 75' topographic tolerance from center of spacing unit. (Order 34-62, 55-62.)	None
BRORSON Mission Canyon (Miss.) Oil & Gas Red River (Ord.) Oil & Gas	4 ισ	Structural	Volumetric Water Drive	One well per 160-acre unit, no closer than 660' from unit boundary (Mission Canyon and Red River). (Order 5-69.) Gas to Brorson Field Plant.	None
BRORSON, SOUTH Red River (Ord.) Oil & Gas	м	Structural	Volumetric, Water Drive	One well per 160-acre unit, no closer than 660' from unit boundary. (Order 26-68.) Gas to Brorson Field plant.	None
BROWN'S COULEE Judith River (U. Cret.) Gas Eagle (U. Cret.) Gas	m	Structural	Volumetric	One well per 160-acre unit with well location no closer than 660' from unit boundary. Commingling permitted with administrative approval. (Order 7-74.)	None

	Š.	Type	Probable	Spacing Regulations,	Secondary Recovery
Field, Formation, Age	Wells	Trap	Mechanism	riela Kules, ana Remarks	Water Disposal
BRUSH LAKE Red River (Ord.) Oil & Gas (Shut-in)	in) 2	Structural- Strat.	Depletion Water Drive	320-acre spacing with initial nine spacing units described in (Order 15-71 corrected.)	None
BULLWACKER Judith River (U. Cret.) Gas Eagle-Virgelle (U. Cret.) Gas	28	Structural	Volumetric	One well per 320-acre spacing unit with well location no closer than 660' from unit boundary & 990' from field boundary (Order 26-74.)	None
BURNS CREEK Red River (Ord.)	-	Structural	Depletion Water Drive	State-wide.	None
CABIN CREEK Mission Canyon (Miss.) Oil & Gas (Shut-in)	14 to)	Structural	Water Drive Depletion	Spacing waived and General Rules No. 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are suspended	arflood of Siluro-Ordo voir has been expan
Interlake-Red River Oil & Gas (Sil.) (Ord.)	70	Structural	Water Drive, Depletion	until present Unit Agreement becomes inoperative. (Order 36-62.) Many wells produce from both Interlake and Red River by dual completions. Gas through extraction plant.	full scale peripheral flood. (Orders 60-62, 30-63.)
CANADIAN COULEE Sawtooth (M. Jur.) Gas (Shut-in)	in) 1	Structural- Strat	Volumetric	320-acre spacing units with well location no closer than 660' from unit boundary, and 990' from field exterior boundaries. (Order 18-76.)	None
CANADIAN COULEE, NORTH Sawtooth (M. Jur.)	2	Structural- Strat.	Volumetric	640-acre spacing unit. Location to be no closer than 1650' to section line. (Order 15-74.)	None
CANAL Red River (Ord.)	-	Structural	Water Drive Depletion	320-acre spacing units consisting of East half and West half of governmental section. (Order 34-70.)	None
CAT CREEK Kootenai (L. Cret.) (3 sands) Morrison (U. Jur.)	37 in) 3	Structural- Strat. Structural-	Water Drive	220' from lease or property line, 440' from every other well in same formation. (Order 17-55.) Five separate producing areas, East, Antelope, Mosby, West and Landheim Domes.	·= -
Ellis (U. Jur.)	16	Strat. Structural	Depletion-		13-62, 8-68, 38-70, 11-71.) Water from Third Cat Creek sand.
Amsden (Penn.)	2	Structural- Strat.	Water Drive Water Drive	State-wide.	Waterflood modified. (Order 29- 74.)
CEDAR CREEK Judith River (U. Cret.) Gas	179	Structural	Volumetric	1200' from legal subdivision line, 2400' from every other	None
Eagle (U. Cret.) Gas	09	Structural	Volumetric	well in same formation. (Urder 33-54.) 320-acre spacing units. Wells in center of NW1/4 and SE1/4 of each section with 200' topographic tolerance. (Order 1-61.) Field extension (Order 23-76.)	None
CHARLIE CREEK Nisku (Dev.) Duperow (Dev.)	-	Structural	Water Drive	320-acre spacing units, either east-west or north-south at option of operator, located no closer than 660' from spacing unit boundary and no closer than 1650' from another producing well. Spacing units may not cross section lines. (Order 66-76.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
CHELSEA CREEK Nisku (Dev.) (Abandoned)	-	Structural	Water Drive	State-wide.	None
CHIP CREEK Eagle-Virgelle (U. Cret.)	-	Structural- Strat	Volumetric	160-acre spacing units: Location no closer than 660' from spacing unit boundary. (Order 89-76.)	None
CLARK'S FORK Frontier (U. Cret.)	-	Structural- Strat.	Depletion	330' from quarter-quarter section line, 1320' between wells with 75' topographic tolerance. (Order 17-54.)	None
CLARK'S FORK, NORTH Lakota (L. Cret.) Gas		Structural- Strat.	Volumetric	160-acre quarter section spacing with location no closer than 660' from spacing unit boundary. (Order 23-75.)	None
CLARK'S FORK, SOUTH Greybull (. Cret.) Oil & Gas (Shut-in)	-	Structural- Strat.	Depletion- Water Drive	160-acre spacing, location no closer than 330′ from quarter section line or 1320′ from any other well.	None
COAL COULEE Eagle (U. Cret.) Gas	т	Structural- Strat.	Volumetric	State-wide.	None
CONRAD BUTTE Blackleaf (L. Cret.) Bow Island (L. Cret.) Dakota (L. Cret.)	12	Strat.	Volumetric	State-wide.	None
CONRAD, SOUTH Dakota (L. Cret.)		Strat.	Depletion	10-acre spacing units. Wells in center of each unit with 75' topographic tolerance. (Orders 34-62, 31-63.)	None
COW CREEK Charles Miss.)	8	Structural	Water Drive	80-acre spacing units, direction at option of operator but wells to be in SW½ and NE½ of each quarter section. (Order 11-69.)	None
COW CREEK, EAST Kibbey (Miss.)	10	Structural	Water Drive	40-acre spacing units consisting of quarter-quarter section with permitted well to be at center with 150' topographic tolerance. (Order 35-74.)	Produced water disposed into Dakota formation. (Order 30-A- 75.)
CULBERTSON Red River (Ord.)	<del></del>	Structural- Strat.	Depletion- Water Drive	State-wise in part. Unitized as to SE¼ of Section 32, SW¼ of Section 33, N½NW¼ of Section 4, and N½NE¼ of Section 5. (Order 29-70.)	None
CUPTON Red River (Ord.)	Ξ	Structural- Strat.	Water Drive	160-acre quarter section spacing units. Location no closer than 660' from spacing unit boundary. (Order 4-72.)	None

		Prod.	jo	Drive	Field Rules and	
Field, Formation, Age		Wells	Trap	Mechanism	Remarks	Water Disposal
CUT BANK						
Kootenai (L. Cret.) Oil & Gas	as	802	Strat.	Depletion	(Kootenai formation includes Moulton, Sunburst, and Cut Rank sands ) Oil: 330' from local subdivision line, 650'	There are 18 waterfloods in
Madison (Miss.) Oil & Gas		24	Strat.	Water Drive	between wells in same formation 5-spot on 40-act tract	Madison, or produced. Produced
(Gas only) Cut Bank (L. Cret.) Gas	(Shut-in)	29	Strat.	Depletion	permittee. 75 topographic tolerance. (Urder 10-54-) Gas: 330' from legal subdivision, 2400' between wells in same formation. 75' topographic tolerance. (Order 10-54-) Sections 20, 29, and 32 of Township 36 North Range 4	water disposed into Madison formation. (Order 22-A-74.)
					West spaced 320-acres (N/s 8/%) (profer 26-70.) 320-acre spacing units for gas from Cut Bank formation,	
DARLING (Included as part of Cut Bank Field)	ink Field)				consisting of EY <sub>2</sub> and WY <sub>2</sub> , located no closer than 330′ from unit boundary (Order 46-76.)	
DEAN DOME Greybull (L. Cret.) Gas Oil	(Shut-in)		Structural	Water Drive	State-wide. Oil ring below gas cap.	None
DEER CREEK Interlake (Sil.)	(Shut-in)	- 4	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections. Well location in NE¼ and SW¼ of	Excess produced water is disposed into Dakota and Lakota
Red River (Ord.)	(Shut-in)	2	Structural	Water Drive	each quarter section with 75' topographic tolerance. (Orders 23-55 & 14-59.) Commingling of production permitted upon approval of Commission Petroleum Engineer. (Order 18-63.)	formations. (Orders 6-56 & 3- 58.) Two Silurian wells shut-in.
<b>DELPHIA</b> Amsden (Penn.)		-	Structural	Water Drive	State-wide.	None
DEVIL'S BASIN Heath (U. Miss.)		ო	Structural	Depletion	State-wide.	None
DEVON Blackleaf (U. Cret.) Gas Kootenai (L. Cret.) Oil	(Shut-in) Depleted	23	Strat. Strat.	Volumetric Depletion	State-wide. State-wide.	None None
DEVON, SOUTH Bow Island (L. Cret.) Gas	(Shut-in)	- 6	Strat.	Volumetric	Drilled on state-wide spacing. Unitized for primary production. (Order 28-71, corrected).	None
DRY CREEK Eagle (U. Cret.) Gas Judith River (U. Cret.) Frontier (U. Cret.) Gas Greybull (L. Cret.) Gas Greybull (L. Cret.) Oil	(Shut-in)		Structural- Strat. Structural Structural- Strat.	Volumetric Volumetric Volumetric- Depletion	State-wide. Field re-delineated. (Order 8-70.) Six additional gas storage wells, west end of structure.	None
DRY CREEK MIDDLE Frontier (U. Cret.) Gas		-	Structural- Strat.	Volumetric	320-acre spacing units consisting of two adjacent governmental quarter sections lying N-S or E-W at operator's option with permitted well no closer than 660' from spacing boundary (Order 25-75.)	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
DWYER Ratcliffe (Miss.) (Shut-in)	01	Structural- Strat.	Water Drive- Volumetric	160-acre spacing units; well location in center of SE¼ of spacing unit with 175' topographic tolerance. (Orders 25-60, 29-61)	Produced water disposed into Dakota formation. (Order 26-63.)
EAST KEITH & KEITH Bow Island (L. Cret.) Gas	7	Structural	Water Drive	State-wide, except unitized portions spaced by (Order 22-	None None
Sawtooth (Jur.) Gas	2			oz). Fooling (Order 19-66.)	
ELK BASIN (Mont. Portion) Frontier (U. Cret.)	13	Structural	Gravity	Rule No. 203 (Spacing) is waived within Unit Area. (Order	. Water in
Embar-Tensleep (Perm., Penn.0 Oil and Gas (Shut-in)		Structural	Oramage Gravity Drainage	10-01.) Gds to Elk Basin gasoline plant.	pressure maintenance by crestal gas injection Waterflood
Madison (Miss.)	21	Structural	Water Drive		approved in 1966. (Order 5-66.) Madison: Water injection (Order 17-61.)
ELK BASIN, NORTHWEST					
Frontier (U. Cret.)	- 9	Structural	Depletion	Spacing waived within unitized portion except that bottom of	Frontier: Waterflood in progress.
Embar-Tensleep (Perm., Penn.) Oil and Gas		Structural	Gravity Drainage	at least 1320' surface distance between wells in same formation; 75' topographic tolerance. (Orders 43-63, 28-	(Order 3-67.) Madison, produced water.
Madison (Miss.) (Shut-in)	7	Structural	Water Drive	64.) Gas to Elk Basin gasoline plant.	
EHTRIDGE AREA Bow Island (L. Cret.) Gas (Shut-in)	ო	Strat.	Water Drive	State-wide.	None
Swift (U. Jur.) Gas (Shut-in)	<b>2</b> ←	Strat.	Water Drive	State-wide, except two wells by (Order 28-65.)	
FAIRVIEW					
Winnipegosis (Dev.) Oil & Gas Red River (Ord.) Oil & Gas	- ∞	Structural	Water Drive Water Drive	160-acre spacing unit. Well location anywhere in spacing unit but no closer than 660' from unit boundary. (Order 48-65, 1-67, 43-67, 44-67.) Gas to Fairview plant.	Northwest part of field unitized for gas injection. Gas from Fairview and Brorson fields. (Order 11-70.) Salt water disposal into
					Dakota. (Orders 9-A-71, 24-A-71.)
FERTILE PRAIRIE					
Red River (Ord.)	2	Structural- Strat.	Water Drive	80 acre spacing units consisting of north-south rectangular units. Well location in NW¼ and SE¼ of quarter section with 75' topographic tolerance. (Orders 3-56, 7-62.)	None

Field, Formation, Age		No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
FLAT COULEE Bow Island (L. Cret.) Gas Dakota (L. Cret.) Gas Swift (Jur.) Gas Swift (Jur.) Oil Sunburst (L. Cret.) Gas Sawtooth (Jur.) Gas	(Shut-in) (Shut-in) (Shut-in) (Shut-in)	20	Strat. Strat. Strat. Strat. Strat. Strat. Strat.	Depletion Depletion Depletion Depletion Depletion Depletion	330' from boundary of legal subdivision and 1320' from other wells in same reservoir. (Order 16-55.) State-wide, exception (Order 11-66.) State-wide gas spacing. 40-acre spacing units. Well in center of spacing unit with 150' topographic tolerance. (Orders 16-62, 19-63.) State-wide.	Waterflood unit and redeliniation approved for Swift sandstone. (Orders 13-71, 17-A-71, 22-71.)
FLAT LAKE Nesson (Miss.) Ratcliffe (Miss.)	(Shut-in)	1 64	Strat. Structural- Strat.	Partial Water Drive Partial Water Drive	160-acre spacing units; well location in center of NE½ of quarter section with 200' topographic tolerance. Wells no closer than 961' to North Dakota state line and no closer than 1600' to Canadian line. (Orders 10-65 amended, 43-65, 23-66, 33-66.)	Excess salt water disposed into Muddy, Dakota, or Lakota formations. (Orders 39-64, 39-66.) Unit operation for eastern part of field. (Order 7-71.) Unit operation for western part of field. (Order 32-74.)
FLAT LAKE, SOUTH Ratcliffe (Miss.)	(Shut-in)	0 W	Structural- Strat.	Partial Water Drive	Same as Flat Lake spacing. (Order 2-67.)	Excess salt water disposed into Muddy, Dakota, or Lakota. (Order 19-67.)
FOUR MILE CREEK Red River (Ord.)		-	Structural	Depletion	320-acre spacing units. (Order 43-75.)	None
FRANNIE (Mont. Portion) Tensleep (Penn.)		-	Structural	Comb. Water Drive and Gravity Drainage	10-acre spacing units; well location in center of each unit with 100' topographic tolerance. (Order 35-63.)	Unitized for waterflood of Phosphoria-Tensleep formations using produced fluids. (Order 21-70.)
FRED & GEORGE CREEK Sunburst (L. Cret.) Oil & Gas (Swift (U. Jur.) Oil & Gas	K as (Shut-in)	15 2 16	Strat. Strat.	Depletion Depletion	Oil: 40-acre spacing units; well location in center of unit with 250' topographic tolerance. (Orders 29-63, 1-65.) State-wide.	Sunburst waterflood initiated July, 1970, using water from Madison, (Order 13-70) and Earle water (Order 13-70).
FRESNO Eagle-Virgelle (U. Cret.)	(Shut-in)	4 -	Structural- Strat.	Volumetric	640-acre spacing units, well located no closer than 990' from unit boundary. One well may be drilled within each spacing unit for each production horizon within the spacing unit. (Order 14-76.)	None
FROID, SOUTH Red River (Ord.)		-	Structural- Strat.	Depletion	State-wide.	None

Field, Formation, Age		Prod.	of Trap	Drive	Field Rules, and Remarks	or Water Disposal
FT. GILBERT Red River (Ord.)	(Shut-in)	7 -	Structural- Strat.	Depletion	State-wide.	None
<b>GAGE</b> Amsden (Penn.)		-	Structural	Water Drive	State-wide.	None
GAS CITY Red River (ord.)		15	Structural	Depletion- Water Drive	80-acre spacing units consisting of E½ and W½ of quarter sections; well location in NW¼ and SE¼ of quarter section; 150 topographic tolerance. Spacing waived and state-wide Rules 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are waived in unitized portion of field. (Order 29-62.)	Excess produced water disposed into Judith River formation. (Orders 32-61, 20-64.) Waterflood using produced water and Madison water. (Order 16-69.)
GIRARD Red River (Ord.) Interlake (Sil.)			Structural- Strat.	Depletion- Water Drive	State-wide.	None
<b>GLENDIVE</b> Red River (Ord.) Oil & Gas	(Shut-in)	4 2	Structural- Strat.	Depletion- Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections; wells located in center of NE'4 and SWV4 of each quarter section with 75' topographic tolerance. (Orders 27-55, 19-62, 58-62, 20-66.)	Excess produced water disposed into Swift, Dakota and Judith River formations. (Orders 16-56, 16-63, 40-A-70.)
GOLD BUTTE Bow Island (L. Cret.)	(Shut-in)	-	Structural	Water Drive?	640-acre spacing, well location any quarter-quarter sec-	None
Swift (U. Jur.) Gas	(Shut-in)	-	Structural	Water Drive?	tion cornering on center of section. (Order 20-59.)	
<b>GOLDEN DOME</b> Eagle (U. Cret.) Gas	(Shut-in)	7	Structural- Strat.		160-acre spacing; 660' from spacing unit boundary.	None
GOOSE LAKE Ratcliffe (Miss.) Oil & Gas	(Shut-in)	9 4	Strat.	Partial Water Drive	Unitized. (Order 17-72.)	Excess produced water disposed into Mission Canyon and Dakota formations. (Orders 12-64, 14-66, 12-68.)
GRABEN COULEE Sunburst (L. Cret.) Cut Bank (L. Cret.) Cut Bank-Madison (Dual	(Shut-in)	3 9 9 1	Structural- Strat. Structural- Strat. Structural- Strat.	Depletion Depletion Depletion	40-acre spacing units; well location no closer than 330' from legal subdivision. (Cut Bank and Madison) Oil: 330' from boundary of legal subdivision and 650' from any other well in same reservoir and on same lease. 75' topographic tolerance. (Order 73-62.)	None

Gas Structural Unknown 320-acre spacing units aligned and structural Unknown State-wide.  Structural Unknown State-wide.  Structural Unknown State-wide.  Strat. Combletion Order 7-66)  Strat. Drive and closer than 330' from leas and strate-wide.  Strat. Combletion Order 7-66)  Strat. Drive and Closer than 330' from leas and strate-wide.  Strat. Drive and Closer than 330' from leas and strate-wide.  Strat. Drive and Closer than 330' from leas and strate-wide.  Strat. Drive and Closer than 330' from unitboundary. Order 85-10  Structural Depletion State-wide. Single well us Structural Order 8-10-60 from unitboundary.	Eild Engagerica Asp	No.	Type	Probable Drive Merhanism	Spacing Regulations, Field Rules, and Parmete	Secondary Recovery
5 Structural Unknown 1 Structural Unknown 1 Structural Unknown 2 Strat. Completion 2 Strat. Completion 31 Strat. Completion 1 Structural Comb. Water Strat. Completion 1 Structural Comb. Water Strat. Completion 1 Structural Comb. Water Strat. Completion 1 Structural Depletion 1 Structural Depletion 1 Structural Depletion 2 Structural Depletion 31 Structural Depletion 4 Structural Depletion 5 Structural Depletion 1 Structural Depletion 1 Structural Depletion 2 Structural Depletion 3 Strat.	260 / 100 million / 100 million		da			water Disposal
1 Structural Unknown Structural Unknown Strat.  4 Structural Comb. Water Strat. Completion Strat. Strat. Combletion Drive and Depletion Strat.  2 Structural Comb. Water Strat. Strat. Completion Completion  1 Structural Depletion  1 Structural Depletion  1 Structural Depletion  1 Structural Depletion  4 Structural Volumetric  -in) 6 Structural Depletion  4 Structural Depletion	GRANDVIEW Bow Island (L. Cret.) Gas	ഹ	Structural	Unknown	320-acre spacing units aligned in a north-south direction;	None
6 Structural- Unknown Strat.  4 Structural- Comb. Water Completion 5 Strat. Comb. Water Drive and Drive and Depletion 5 Strat. Comb. Water Drive and Drive and Drive and Completion 1 Structural- Combletion 1 Structural- Water Drive Strat. Volumetric 1 Structural Depletion 1 Structural Depletion 1 Structural Volumetric 1 Structural Volumetric 1 Structural Depletion 2 Strat. Depletion 3 Structural Depletion 4 Structural Depletion	(2 Zones) Madison (Miss.) Gas Swift (U. Jur.) Oil		Structural Structural	Unknown Unknown	well locations no closer than 660' to a spacing unit boundary.(Order 49-67.)Dual completion with Bow Island.	
4 Structural- Comb. Water Strat. Completion Completion Strat. Completion Drive and Drive and Drive and Depletion Strat. Comb. Water Drive and Completion Strat. Volumetric Completion 17 Structural- Water Drive Strat. Depletion 1 Structural Depletion 1 Structural Volumetric Water Drive Strat. Agractural Strat. Water Drive Strat. Structural Volumetric Strat. Structural Volumetric Strat. Structural Volumetric Strat. Structural Volumetric Strat.	GUMBO RIDGE Tyler (L. Penn.)	Q	Structural- Strat.	Unknown	State-wide.	None
Completion Strat. Comb. Water Strat. Drive and Drive and Strat. Comb. Water Strat. Completion  Strat. Volumetric Completion  Strat. Volumetric Strat. Volumetric Fin) 31 Structural Depletion  Structural Volumetric Strat. Volumetric Strat. Volumetric Strat. Volumetric Strat. Volumetric Strat. Volumetric Fin) 6 Structural Volumetric Strat. Volumetric	GYPSY BASIN Sunburst (L. Cret.) Oil & Gas	4	Structural- Strat.	Comb. Water Drive and	330' from lease lines and 660' between wells in same formation. Only two wells per quarter-quarter section.	Order 6-64 permits injection of excessive gas (produced with oil)
2 Structural- Comb. Water Strat. Completion Completion 17 Strat. Volumetric Fin) 31 Structural Water Drive Strat. Depletion 1 Structural Volumetric Fin) 1 Structural Volumetric Strat. Strat. Strat. Avater Drive Strat. Strat. Strat. Strat. 4 Structural Depletion Strat.			Structural- Strat.	Completion Comb. Water Drive and Depletion	Order 7-55.) Same as Sunburst	into the Sunburst gas cap.
2 Structural Comb. Water Strat. Completion Completion 17 Strat. Volumetric Fin) 31 Structural Water Drive Strat. Depletion 1 Structural Volumetric Fin) 1 Structural Volumetric Strat. Avater Drive Strat. Strat. Avater Drive Strat. Strat. Structural Strat. Avater Drive Strat. Structural Volumetric Strat.						
(Shut-in) 31 Structural- Water Drive Strat. Depletion 1 Structural Depletion 1 Structural Volumetric (Shut-in) 1 Structural Volumetric Strat.  Structural- Volumetric Strat.	Sawtooth-Madison (Jur. & Miss.) Oil & Gas		Strat.	Comb. Water Drive and Completion	(Sawtooth-Madison) Oil: 40-acre spacing units; wells no closer than 330' from lease line. (Order 7-66.) (Sawtooth-Madison) Gas: 160-acre spacing units; well locations in center of any quarter-quarter section in each 160-acre unit, 2340' between gas wells. 150' topographic tolerance. (Order 13-59.)	None None
Strat. Water Drive Strat. Depletion  Structural Depletion  Structural Volumetric Water Drive (Shut-in) 6 Structural Volumetric Strat.			Strat.	Volumetric	State-wide.	Water disposal into Red River. (Order 20-A-70.)
1 Structural Depletion 1 Structural Volumetric (Shut-in) 6 Structural Volumetric Strat. 4 Structural Depletion	HAVRE Eagle (U. Cret.)	-	Structural- Strat.	Water Drive Depletion	State-wide. Single well used in town of Havre.	
Structural Volumetric (Shut-in) 1 Water Drive (Shut-in) 6 Structural Volumetric Strat.	HAY CREEK Mission Canyon (Miss.)	-	Structural	Depletion	State-wide.	None
(Shut-in) 6 Structural- Volumetric Strat.		. L	Structural	Volumetric Water Drive	320-acre spacing, any two adjacent quarter sections, direction to be determined by operator. Location no closer than 660' from unit boundary. (Orders 15-69, 27-73.) Gas to Brorson plant.	
4 Structural Depletion			Structural- Strat.	Volumetric	640-acre spacing units; one well per each producing horizon above Kootenai. Location no closer than 990' from spacing unit boundary. (Order 85-76.)	None
	НІАМАТНА Tyler (L. Penn) (2 sands)	4	Structural- Strat.	Depletion	State-wide.	None

Field, Formation, Age	Prod.	of of Trap	Drive Mechanism	Field Rules, and Remarks	Vater Disposal
HIBBARD Amsden (Penn.)	-	Unknown	Water Drive	State-wide.	None
HIGHVIEW Madison (Miss.) Oil & Gas	-	Structural	Water Drive	160-acre spacing units, located no closer than 660' from spacing unit boundary. 150' topographic tolerance. (Order 84-76.)	None
HORSE CREEK Swift (U. Jur.)	-	Structural	Water Drive	State-wide.	None
HOWARD COULEE Tyler (L. Penn.)	1 (Shut-in) 1	Structural- Strat.	Unknown	State-wide.	None
INJUN CREEK Tyler (Penn.) Abandoned	0	Strat.	Depletion	State-wide.	None
IVANHOE Morrison (U. Jur.)	(Shut-in) 2	Structural-	Depletion	40-acre spacing unit for production from any one common	Waterflood of Tyler B & C sands
Amsden (L. Penn.)	1	Strat. Structural-	Water Drive	formation; well location in center of unit with 200' topographic tolerance. (Order 7-60 and 9-56.)	discontinued.
Tyler (L. Penn.)	ω	Strat. Structural- Strat.	Depletion		
JIM COULEE Tyler (L. Penn.)	17	Structural Strat.	Depletion Water Drive	Unitized (Order 18-72.) No well closer than 330' from unit boundary.	Waterflood; produced and Third Cat Creek water,
KEG COULEE Tyler (Penn.) Oil & Gas	18 (Shut-in) 5	Strat.	Depletion	40-acre spacing in southwest portion of field except that spacing is waived in unitized portion. (Orders 3-64, 4-64, 23-64, 80-acre spacing in remainder of field with variable pattern. (Orders 11-60, 28-62.) (40-acre spacing; W½ E½ and W½ Sec. 35-11N-30E; NW¼ Sec. 2-10N-30E). (Order 23-72.) Topographic tolerance varies from 100' to 250'. (Orders 11-60, 4-64, 23-64.) Buffer zone waived. (Order 16-65) Field Reduction (Order 2-76.)	Three waterflood units. (Orders 3-64, 28-66, 10-69, 14-69.) Madison water injected.
KEG COULEE, NORTH Tyler (Penn.)	м	Strat.	Depletion	40-acre spacing units; well location in center of spacing unit with 150' topographic tolerance. (Order 46-64.) Buffer zone waived. (Order 16-65.)	None
KEITH (see East Keith)					
KELLEY Tyler (Penn.)	м	Strat.	Depletion	State-wide, 250' topographic tolerance. (Order 15-67.)	Waterflood using Third Cat Creek water, (Order 8-69.)

Wells         Trap         Mechanism           51         Strat         Depletion         9 wells per 40-acre tract; only back at least 220′ from line. 1           7         Structure- Strat.         Depletion         54, 28-55.) (Estimated 400 w.m. and the structured 400 w.m. and the spacing units; local spacing units; local spacing units boundary. (Order 17-74.) Order 17-74.) Order 640-acre spacing with local decoration of the spacing units to be strat.           Shut-in)         2         Structural- Volumetric State-wide. Strat.         Strat. Depletion State-wide. Order 17-74.) One 640-acre spacing units to be than 660′ from unit boundary at Comminging permitted and Corder 990′ from section lines (Order 9-74.) Gas from Telegon (Order 9-74.) Gas f		Prod.	Type	Probable Drive	Spacing Regulations, Field Rules, and	Secondary Recovery or
Structure Depletion 9 wells per 40-acre tract; only 3 wells on any side of tractset back at less; 220° from line. Field delineated by (Orders 8-54, 28-55) (Estimated 400 wells shut-in.)  Structure Depletion 320-acre spacing units; location no closer than 990° from spacing unit boundary. (Order 83-75.)  Structural Depletion 320-acre spacing units; location no closer than 990° from spacing unit boundary and 990° from field boundary. (Order 83-76.)  Structural Depletion 320-acre spacing units to base of Virgelle; wells no closer than 660° from unit boundary and 990° from field boundary. (Order 17-74.)  Structural Volumetric State-wide. One shut-in gas well.  (Shut-in) 2 Structural Unknown 860-acre spacing units consisting of one section. Locations (Shut-in) 2 Structural Unknown 100-acre spacing units consisting of one section. Locations (Shut-in) 2 Structural Unknown Water Drive State-wide.  (Shut-in) 1 Unknown Water Drive State-wide. State-wi	Field, Formation, Age	Wells	Trap	Mechanism	Remarks	Water Disposal
Structure	KEVIN-SUNBURST Sunburst (L. Cret.) Oil & Gas	51	Strat	Depletion	9 wells per 40-acre tract; only 3 wells on any side of tract set	There are five waterfloods in
Shut-in   12   Structure   Depletion   State-wide   Shut-in   2   Structural   Depletion   State-wide   Shut-in   2   Structural   Depletion   State-wide   Shut-in   2   Structural   Unknown   State-wide   Shut-in   Structural   Unknown   State-wide   Shut-in   Structural   Unknown   State-wide	Swift (U. Jur.)	~	Structure		back at least 220' from line. Field delineated by (Orders 8- 54, 28-55.) (Estimated 400 wells shut-in.)	operation, using Madison water. (Orders 9-64, 17-64, 30-64, 36-65, 29-71.)
3   Structural   Depletion   State-wide			Structure- Strat.	Depletion		
Structural Depletion 320-acre spacing with location permitted no closer than None 660' from unit boundary and 990' from field boundary.  (Shut-in) 2 Strat. Depletion State-wide. One shut-in gas well.  (Shut-in) 2 Structural Unknown Water Drive 640-acre spacing units consisting of one-section. Locations 990' from section lines within restricted Sections. (Order 25-74.)  (Shut-in) 2 Structural Unknown Water Drive State-wide.  (Shut-in) 2 Structural Unknown Water Drive State-wide.  (Shut-in) 2 Structural Unknown Water Drive State-wide.  (Shut-in) 1 Structural Unknown Water Drive State-wide.  (Shut-in) 2 Structural Unknown Water Drive State-wide.  (Shut-in) 1 Structural Unknown Water Drive State-wide.	sku (Dev.) Gas	-			640-acre spacing units; location no closer than 990' from spacing unit boundary. (Order 83-76.)	None
Strat.   Structural	CKING HORSE w Island (L. Cret.) wtooth (Jur.) Gas	<b>ω</b> 4	Structural	Depletion	320-acre spacing with location permitted no closer than 660' from unit boundary and 990' from field boundary. (Order 17-74.) One 640-acre unit. (Order 17-74.)	None
(Shut-in) 2 Strat. Depletion State-wide. One shut-in gas well.  Ogas Structural Volumetric theoeste spacing units to base of Virgelle, wells no closer None production. (Order 25-74.)  Strat. Commingling permitted administrative approval (Order 25-74.)  Gas Structural Unknown 640-acre spacing units consisting of one section. Locations 990' from section lines. (Order 3-74.)  Structural Unknown Water Drive State-wide.  (Shut-in) 2 Structural Unknown Water Drive State-wide.  (Shut-in) 2 Unknown Depletion 320-acre spacing with unit consisting of one-half section None spacing with unit consisting of one-half section None (Shut-in) 1 Unknown Depletion 320-acre spacing with unit consisting of one-half section None (Shut-in) 1 Unknown Depletion 320-acre spacing with unit consisting of one-half section None (Shut-in) 1 Unknown Depletion 320-acre spacing with unit consisting of one-half section None (Shut-in) 1 Unknown Order 8-74.)	<b>NYON COULEE</b> w Island (L. Cret.)	4	Structural- Strat.	Volumetric	State-wide.	None
ret.0 Gas Structural Volumetric 160-acre spacing units to base of Virgelle; wells no closer than 660' from unit boundary and 990' from field boundary.  (Order 9-74, Gas from Telegraph Creek pooled. (Order 29-75.)  Structural Unknown 640-acre spacing units consisting of one section. Locations 990' from section line. (Order 3-74.)  Structural Unknown Water Drive State-wide.  (Shut-in) 2 Unknown Depletion State-wide.  (Shut-in) 2 Unknown Depletion Well no closer than 990' from unit boundary. (Order 8-74.)			Strat.	Depletion	State-wide. One shut-in gas well.	≗ _
1 Structural Unknown 640-acre spacing units consisting of one section. Locations 990' from section line. (Order 3-74.)  Structural Unknown 160-acre spacing units located no closer than 660' from quarter section lines within restricted Sections. (Order 63-76.)  1 Unknown Water Drive State-wide.  (Shut-in) 21 Unknown Depletion lying N-S or E-W at operator's option after administrative approval. Well no closer than 990' from unit boundary. (Order 8-74.)	KE BASIN egraph Creek 7U. Cret.0 Gas gelle (U. Cret.) Gas	ω	Structural- Strat.	Volumetric	160-acre spacing units to base of Virgelle; wells no closer than 660' from unit boundary and 990' from field boundary. Commingling permitted after administrative approval. (Order 9-74.) Gas from Telegraph Creek pooled. (Order 29-75.)	None
1 Unknown Water Drive State-wide. (Shut-in) 2 320-acre spacing with unit consisting of one-half section lying N-S or E-W at operator's option after administrative approval. Well no closer than 990' from unit boundary. (Order 8-74.)	ontier (U. Cret.) Gas g. (U. Cret.) Gas		Structural	Unknown Unknown	640-acre spacing units consisting of one section. Locations 990' from section line. (Order 3-74.) 160-acre spacing units located no closer than 660' from quarter section lines within restricted Sections. (Order 63-76.)	None None
(Shut-in) 21 Unknown Depletion 320-acre spacing with unit consisting of one-half section (Shut-in) 1 approval. Well no closer than 990' from unit boundary. (Order 8-74.)			Unknown	Water Drive	State-wide.	None
			Unknown	Depletion	320-acre spacing with unit consisting of one-half section lying N-S or E-W at operator's option after administrative approval. Well no closer than 990' from unit boundary. (Order 8-74.)	None

		Trap	Drive Mechanism	Field Rules, and Remarks	or Water Disposal
(Shut-in) it. Portion) (Shut-in)	2.2	Structural- Strat.	Depletion	80-acre spacing with locations in NE¼ and SW¼ of each quarter section, 200' topographic tolerance. (Order 12-69, 19-70.)	None
s nt. Portion) (Shut-in)	24	Unknown	Depletion	320-acre spacing with unit consisting of one-half section lying N-S or E-W at operator's option after administrative approval. Well no closer than 660' from unit boundary and 990' from field boundary. (Order 19-75.)	None
(Shut-in)	7	Structural- Strat.	Depletion	Spacing, one well per 640 acres, with location no closer than 990' from section boundary. (Order 20-72.)	None
5	23	Structural	Comb. Depletion and Water Drive	Spacing waived and General Rules 213 (Deviation), 218 (Commingling) and 219 (Dual Completion) are suspended until present Unit Agreement becomes inoperative. (Order 41-62.)	Waterflood of the Red River was commenced in August, 1967. (Order 3-66.) Minnelusa water.
Ç	o	Structural	Comb. Depletion and Water Drive	Same as for Little Beaver. (Order 42-62.)	Waterflood of the Red River was commenced in April, 1965. (Order 33-64.)
(Shut-In)	13	Strat.	Depletion Water Drive	State-wide.	None
LODGE GRASS Tensleep (Penn.)	-	Structural- Strat.	Water Drive	160-acre spacing units; well locations vary according to areas; 250' topographic tolerance. (Orders 26-64, 26-65.)	None
<b>LONE BUTTE</b> Red River (Ord.)	2	Structural	Unknown	320-acre spacing units with well location at least 660' from unit boundary. Not delineated.	None
LONETREE CREEK Red River (Ord.) (Shut-in)	9 -	Structural	Depletion	320-acre spacing, wells 660' from spacing boundary, 2000' between wells. (Order 29-72.)	None
LONG CREEK Madison (Miss.) Charles	-	Structural	Water Drive	State-wide spacing.	None

	Prod.	Type	Probable Drive	Spacing Regulations, Field Rules, and	Secondary Recovery or
Field, Formation, Age	Wells	Trap	Mechanism	Remarks	Water Disposal
LOOKOUT BUTTE (Includes Coral Creek Unit) Madison (Miss.)	ო	Structural	Water Drive	State-wide spacing.	Water disposal into Madison.
Interlake, Red River (SilOrd.)	28	Structural	Comb. Depletion and Water Drive	160-acre spacing; well location in center of SE¼ of each quarter section with 150′ topographic tolerance. (Order 21-62.) Coral Creek Unit not subject to spacing rules. Redelineated per (Order 7-63.)	(Order 68-62.) Waterflood of Silurian-Ordovi- cian approved in 1966. (Order 35-66.) Water from Minnelusa.
MASON LAKE Lakota (L. Cret.)	7	Structural	Water Drive	State-wide.	None
MELSTONE Tyler (Penn.) (Shut-in)	es ←	Structural- Strat.	Depletion	State-wide.	None
MIDDLE BUTTE Bow Island (Cret.)	7	Structural	Volumetric	320-acre spacing units consisting of E½ & W½ of each section; well location in center of either of the inside quarter-quarter sections located in E½ of each spacing unit. 75′ topographic tolerance. (Order 3-60.) Re-delineated. (Order 21-75.)	None
MINERAL BENCH Duperow (Dev.)	-	Structural	Water Drive	State-wide.	Water disposal into Dakota- Lakota per (Order 18-65.)
Sunburst (L. Cret.) Swift (U. Jur.) Madison (Miss.) Sunburst-Swift Gas Sawtooth (M. Jur.) (Shut-in)	20	Strat. Strat. Strat. <sup>2</sup> Strat.	Depletion Depletion Water Drive Depletion	Oil: 40-acre units consisting of quarter-quarter sections; well location no closer than 330' from lease or property line and 660' from any other well. (Order 9-66.) Order 9-66 amended to comply with Order 5-74.  Gas: 160-acre spacing with wells 990' from unit boundary. (Order 5-74.) Sawtooth gas spacing unit. (Order 43-76.)	None
Monarch Mission Canyon (Miss.)	2	Strat.	Water Drive	80-acre spacing units consisting of east and west half of quarter section. Well location in SW14 and NE14 of quarter section. Location within 660' square at center of quarter section. (Order 18-61.)	Produced water is disposed into the salt water disposal system for the Pennel Field.
Interlake, Red River (SilOrd.)	თ	Structural- Strat.		160-acre spacing units consisting of a quarter section; well location in center of SW½ of each quarter section with 175′ topographic tolerance. (Orders 12-59, 4-63.)	Waterflood initiated 12-1-73. (Order 23-73.)
MOSBY (See Cat Creek) (Shut-in)	m <b>4</b>	Structural- Strat.	Water Drive	Listed as part of Cat Creek.	Waterflood, 2nd Cat Creek sand. (Order 8-68.) Water-flood in Amsden. (Order 11-71.)

Field, Formation, Age		No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
MOSSER Greybull (L. Cret.)	(Shut-in)	10	Structural	Water Drive	Spacing waived. Future development requires administrative approval of the Commission. (Order 27-62.)	None
MT. LILLY Madison (Miss.) Gas		ო	Structural	Water Drive	640-acre spacing, well location in approximate center of any of the four quarter-quarter sections adjoining center of section; 250' topographic tolerance. (Order 37-63.)	None
MUD CREEK Amsden (L. Penn.)		7	Structural	Water Drive	640-acre spacing unit. Well location anywhere in 160-acre tract in center of each 640-acre well spacing unit (Order 9-63.)	None
NOHLY Red River (Ord.)		7	Structural	Volumetric Water Drive	State-wide.	None
NORTH FORK Red River (Ord.)		-	Structural	Water Drive	State-wide.	None
NORTH GILDFORD Sawtooth (M. Jur.)	(Shut-in)	-	Structural	Unknown	320-acre specified spacing units. One well per unit 660' from boundary, 2640' between wells. (Order 9-58.) Boundary reduction (Order 38-76.)	None
NORTH LAKE BASIN (See Lake Basin, North)						
NORTH WILLOW CREEK (See Willow Creek, North)						
OTIS CREEK Red River (Ord.)		2	Structural	Depletion	State-wide.	None
OTIS CREEK, SOUTH Red River (ord.)		2	Structural	Depletion	State-wide.	None
OUTLOOK Duperow (Dev.)			Structural-	Water Drive	State-wide.	Produced water is disposed into
Winnepegosis (Dev.)	(Sinut-in)	– ო	Structural-	Water Drive	State-wide.	Dakota and Siluro - Devonain formations. (Orders 16-59, 17-
Silurian-Devonian	(Shut-in)	53	Structural- Strat.	Water Drive	160-acre spacing units; well location in center of either SW1/4 or NE1/4 of each quarter section; 175' topographic tolerance. (Order 19-59A.)	(20-00-)
OUTLOOK, SOUTH Winnipegosis (Dev.)		-	Structural	Water Drive	160-acre spacing; permitted wells in either SW½ or NE¾ of quarter section; 175′ topographic tolerance. (Order 19-59A.) Commingling permitted. (Order 45-64.)	Produced water disposed into Muddy and Dakota formations. (Orders 19-59, 17-65.)

	Prod.	Type	Probable Drive	Spacing Regulations, Field Rules, and	Secondary Recovery
Field, Formation, Age	Wells	Trap	Mechanism	Remarks	Water Disposal
OUTLOOK, WEST Winnipegosis (Dev.)	2	Structural	Water Drive	160-acre spacing units consisting of quarter sections; permitted wells in either SW¼ or NE¼ with a tolerance of 175′. (Order 7-67.)	Produced water disposed into Dakota formation.\(Order 42-66.)
PENNEL Mission Canyon (Miss.)	ω	Structural	Depletion- Water Drive	80-acre spacing units consisting of east and west half of quarter section; wells located in center of SE¼ and NW½ of quarter sections with 150' topographic tolerance. (Order 15-	Produced water is being injected into Dakota, Siluro-Ordovician and Madison formations (Ordoverse)
Siluro-Ordovician Oil & Gas	106	Structural	Depletion- Water Drive	61.) 80-acre spacing units on west side and 160-acre spacing units on east side of pool. Wells to be located in SE¼ and NW¼ of each quarter section (80 acres) and in SE¼ of each quarter section on 160-acre spacing. (Orders 1-56, 8-56, 15-61, 20-62, 4-63, 7-63.) Commingling approved. (Order 59-62.)	16-60, 46-62, 68-62, 36-63, 13-64.) Waterflood for Siluro-Ordovician approved Nov. 1968. (Order 24-68.)
PINE Mission Canyon (Miss.) Oil & Gas	7	Structural	Water Drive	Spacing and General Rules 213, 218 and 219 are waived	A waterflood program for the
Siluro-Ordovician Oil & Gas	6	Structural	Depletion- Water Drive	within the rine our, oc-acte spacing units outside of unit area; welllocation in NW¼ and SE¼ of quarter section; 150′ topographic tolerance. (Order 37-62.) Gas through extraction plant.	south area was started in 1959. A waterflood of the north area was approved in 1967. (Orders 13-68, 1-60, 8-62, 32-67.) Produced water injected into Mission Canyon. (Order 10-A-74.)
PLEVNA Judith River (U. Cret.) Gas (Shut-in)	19	Structural	Water Drive	1200' from legal subdivision line; 2400' from other wells on same lease or unit; 75' topographic tolerance. (Orders 34-54, 4-57.)	None
PONDERA Sun River (Miss.) Oil & Gas	292	Strat.	Depletion- Water Drive	Oil: 220' from legal subdivision, 430' from other wells in same reservoir on same lease; 75' topographic tolerance. Porter Bench Extension: 330' from legal subdivision line; 650' from other wells in same reservoir on same lease or unit; 75' topographic tolerance. (Order 9-54.) Gas: 1320' from legal subdivision; 3700' from other wells on same lease or unit; 75' topographic tolerance. (Order 9-54.) General Rules 207, 211, 219, 221, 223, and 224 do not apply.	Produced water injected into lower Madison. (Orders 11-56, 15-56, 4-65, 4-66, 20-A-71.) A small waterflood project has been in operation since 1959, using Madison water.
POLICE COULEE Bow Island (L. Cret.) (Shut-in)	8	Structural	Depletion	320-acre spacing units; location no closer than 990' from section line and 660' from half section lines. Spacing units to consist of north half or south half, east half or west half at discretion of operator. (Order 53-76.)	None
PONDERA COULEE Sun River (Miss.) (Shut-in)	4	Structural	Water Drive	330' from legal subdivision lines or upon a 10-acre spacing pattern; 75' topographic tolerance. (Order 5-62.)	None

Field, Formation, Age	- d >	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
POPLAR, EAST Madison (Miss.) (Charles & Mission Canyon fms.) Heath (Tyler) (Penn.)	fms.)	57	Structural Structural	Water Drive Water Drive	State-wide spacing: field delineated by (Order 7-55.) Re-delineation of field (Order 25-76.)	Unitized in 1955. (Order 7-55.) Excess produced water has been
Nisku (Dev.)		· -	Strat. Structural	Water Drive		First and Mission Canyon River, and Mission Canyon formations. (Orders No. 1-55, 5-57, 7-57, 14-61, 21-61, 34-61,
POPLAR NORTHWEST Charles (Miss.) ("B" & "C" or McGowan Zone)	one)	Ξ	Structural	Water Drive	80-acre spacing units for all zones in Charles formation consisting of E½ and W½ of each quarter section; permitted wells in NW¼ and SE¾ of quarter section except for certain specified spacing unit tracts (rders 18-55 & 26-76.) Commingling approved. (Order 26-76.)	10-62, 51-67, 10-A-73.) None
PRAIRIE DELL Bow Island (L. Cret.) Gas Swift (U. Jur.) (Dual) Gas		വ	Structural- Strat.	Depletion	320-acre spacing units with well location no closer than 660' from spacing unit boundary. (Order 10-76.)	None
PRAIRIE ELK Charles "C" (Miss.)	(Shut-in)		Unknown	Water Drive	State-wide.	None
PRICHARD CREEK Sunburst (L. Cret.) Oil & Gas (	as (Shut-in)	നന	Strat.	Depletion	Well locations subject to administrative approval.	None. Unitized as to Sunburst for water injection. (Order 7-73.)
PUMPKIN CREEK Shannon (U. Cret.) Gas	(Shut-in)	വര	Strat. Strat.	Depletion	State-wide, Delineated, (Order 10-71.)	None
PUTNAM Interlake (Sil.)			Structural	Volumetric Water Drive	State-wide.	None. Gas to McCulloch Gas Processing Corp. Brorson Plant.
Red River (Ord.) RABBIT HILLS		-	Structural	Volumetric Water Drive		
Sawtooth (Jur.)		4	Structural Strat.	Volumetric Water Drive	160-acre spacing unit. Well location 660′ from spacing unit boundary. (Orders 17-73, 34-74, 33-76.) Re-delineation (Order 47-76.)	Produced water disposed into Eagle formation.
RAGGED POINT Tyler (Penn.)		23	Strat.	Depletion	40-acre spacing units; 75' topographic tolerance. (Order 8-59.) Spacing waived for Tyler "A" sand reservoir within Tyler "A" Sand Unit except no well can be closer than 660' to Unit Boundary. (Order 35-65.)	A waterflood project of the Tyler "A" sand was commenced in February, 1966, using Third Cat Creek water. (Order 35-65.)
Kibbey (Miss.)	Plugged	0	Structural	Water Drive	State-wide spacing. (Order 15-54.) Commingling of production from Tyler and Kibbey permitted in one well per (order 11-65.)	

	è,	Type	Probable	Spacing Regulations,	Secondary Recovery
Field, Formation, Age	Wells	of Trap	Mechanism	riela Nores, and Remarks	Water Disposal
RAPELJE Claggett, Eagle, Judith River, Virgelle (U. Cret.) (Shut-in)	15 -	Structural- Strat.	Water Drive	160-acre spacing. Wells no closer than 990' to unit boundary. Commingling after administrative approval. (Order 29-73.)	None
RATTLER BUTTE Tyler (Penn.)	2	Strat.	Depletion	State-wide.	None
RATTLESNAKE COULEE Sunburst (L. Cret.) Oil & Gas (Shut-in) Bow Island (L. Cret.) Gas (Shut-in)		Strat.	Depletion	State-wide.	None
RAYMOND Duperow (Dev.) Nisku-Winnipegosis (Dev.) Dual Winnipegosis (Dev.)	7 - 7	Structural- Strat.	Depletion Water Drive	320-acre spacing units. Wells 660' from spacing unit boundary. (Order 38-72.)	Produced water injected into Dakota formation. (Order 39-A- 74.)
RAYMOND, NORTHEAST Winnipegosis (Dev.) (Dual) Red River (Ord.)	-	Structural- Strat.	Depletion Water Drive	160-acre spacing units. Wells 660' from spacing unit boundary. (Order 12-74.)	None
REAGAIN Sun River (Miss.) Oil (Shut-in) Gas	53 11	Structural	Gas Cap- Water Drive	State-wide. (Order 17-54.)	A pressure maintenance project utilizing gas injection was started in 1961. (Order 21-60.) Water-
REAGAN, WEST Blackleaf (L. Cret.) Gas	10	Strat.	Depletion	State-wide. Injected into Reagan field as secondary re-	flood. (Order 27-72.) None
Bow Island (L. Cret.) Oil (Shut-in)	-	Structural- Strat.	Volumetric	covery agent.	
RED CREEK Cut Bank (L. Cret.) Oil & Gas (Shut-in) Sun River (Miss.) Oil & Gas (Shut-in)	7 2 1 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Strat. Structural	Depletion Water Drive	40-acre spacing units; wells in center of spacing unit with 75' topographic or obstruction tolerance; spacing and field rules waived for unitized portion. (Orders 16-58, 73-62, 31-64, 5-70.)	Excess produced water injected into Bow Island and Madison. (Orders 22-63, 37-64.) A water-flood project in the Cut Bank sand was initiated in June, 1965, pring Madison Wasser
RED FOX Nisku (Dev.)	-	Structural	Water Drive	Field consists of one 160-acre spacing unit which straddles the section line. (Order 20-67.)	using intadison water.
REDSTONE Winnepegosis (Dev.) (Shut-in)		Unknown	Water Drive	One well per 160-acre unit, but no closer than 660' from unit boundary.	None

Field, Formation, Age		No. Prod.	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
REPEAT Red River (Ord.)		-	Unknown	Water Drive	State-wide.	None
RESERVE Winnipegosis (Dev.)	(Shut-in)	-	Structural-	Water Drive	160-acre spacing units; permitted well within 1320' square	Excess water injected into Da-
Interlake (Ord.)	(Shut-in)	-	Strat. Structural-	Water Drive	in center of quarter section. Commingling of Red River and Interlake production permitted on individual well basis.	kota sand. (Order 23-A-67.)
Red River (Ord.)	(Shut-in)	e <del>-</del>	Strat. Structural- Strat.	Water Drive	(Orders 34-66, 27-67.)	
RICHEY Charles (Miss.)		2	Structural	Water Drive	State-wide.	Original 80-acre spacing revoked (Order 11-73.)
RICHEY, SOUTHWEST Interlake, Dawson Bay (Sit.) (Dev.)	(Shut-in)	- 2	Structural	Depletion	160-acre spacing units; wells no closer than 900' from boundary of spacing unit. (Order 25-62.)	A waterflood project in the Interlake and Dawson Baywas started
RIPRAP COULEE Ratcliffe (Miss.)		2	Structural- Strat.	Depletion	State-wide.	in 1965. (Order 34-65.) None
ROSCOE Lakota (L. Cret.)	(Shut-in)	-	Structural	Water Drive	State-wide.	None
ROSEBUD Tyler (L. Penn.)		ιΩ	Structural- Strat.	Unknown	State-wide	None
ROUGH CREEK Muddy (L. Cret.)	(Shut-in)	-	Structural Strat.	Depletion	State-wide. Formerly called Duncan Creek.	None
RUDYARD Sawtooth (M. Jur.) Gas	(Shut-in)	m	Structural	Volumetric	640-acre spacing units consisting of one section; well location in center of NW1/4 of section with 75' topographic tolerance. (Order 2-58.) Field boundaries reduced. (Order 39-76.)	None
RUSH MOUNTAIN Winnipegosis (M. Dev.) Red River (Ord.)		-	Structural	Volumetric- Water Drive	State-wide. Dual zone completion in discovery well.	Excess water injected into Dakota sand. (Order 5-A-71.)
SALT LAKE Bakken-Nisku (MissDev.)		т	Structural	Water Drive	State-wide.	None

		Prod.	Type	Probable Drive	Spacing Regulations, Field Rules, and	Secondary Recovery or
Field, Formation, Age		Wells	Trap	Mechanism	Remarks	Water Disposal
SAND CREEK Interlake, Red River (Sil.) (Ord.)	(Shut-in)	4 7	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections. Wells located in center of NWV4 and SE¼ of each quarter section. (Order 16-59.) Commingling of production from Interlake and Red River authorized per (Order 49-62.)	Excess produced water is injected into the Swift formation. (Order 9-61.)
SAWTOOTH MOUNTAIN Judith River (U. Cret.) Eagle (U. Cret.)	(Shut-in) (Shut-in)	Z - 6 -	Structural- Strat.	Volumetric Water Drive	640-acre spacing units, one well per section per formation, location to be not less than 990' from governmental section line. (Order 45-76.)	None
SECOND CREEK Red River (Ord.)		ო	Structural	Volumetric Water Drive	State-wide.	None
SHEEPHERDER Tyler (L. Penn.)		ო	Structural- Strat.	Unknown	State-wide.	None
SHELBY AREA Sunburst (L. Cret.) Gas Swift (Jur.) Gas		33	Structural- Strat.	Depletion	State-wide. Field outline not delineated. A few small Swift sand wells commingled with Sunburst.	None
SHERARD Eagle (U. Cret.) Gas Judith River (U. Cret.) Dual	(Shut-in)	o o −	Structural- Strat.	Volumetric Water Drive	640-acre spacing units; 990' from section line. (Order 1-74.)	None
SHERRARD WEST Eagle, Virgelle (U. Cret.)		-	Structural- Strat.	Volumetric Water Drive	160-acre spacing units; location no closer than 660° to unit boundary. (Order 90-76.)	None
SHOTGUN CREEK Ratcliffe (Miss.)	(Shut-in)	-	Structural	Water Drive	State-wide.	None
SI <b>DNEY</b> Mission Canyon (Miss.)	(Shut-in)	-	Structural	Water Drive	State-wide.	None
SIOUX PASS Interlake (Sil.) Red River (Ord.) Mission Canyon (Miss.)	Dual	∞	Structural	Volumetric Water Drive	320-acre spacing units consisting of two adjacent governmental quarter sections lying N-S or E-W at operator's option. Permitted well no closer than 660' from unit boundary. (Interlake and Red River), 160-acre spacing unit (Mission Canyon) with well no closer than 660' from unit boundary. Commingling of Interlake and Red River production authorized. (Order 10-75.)	Excess water injected into Dakota formation. (Order 15-A- 75.)

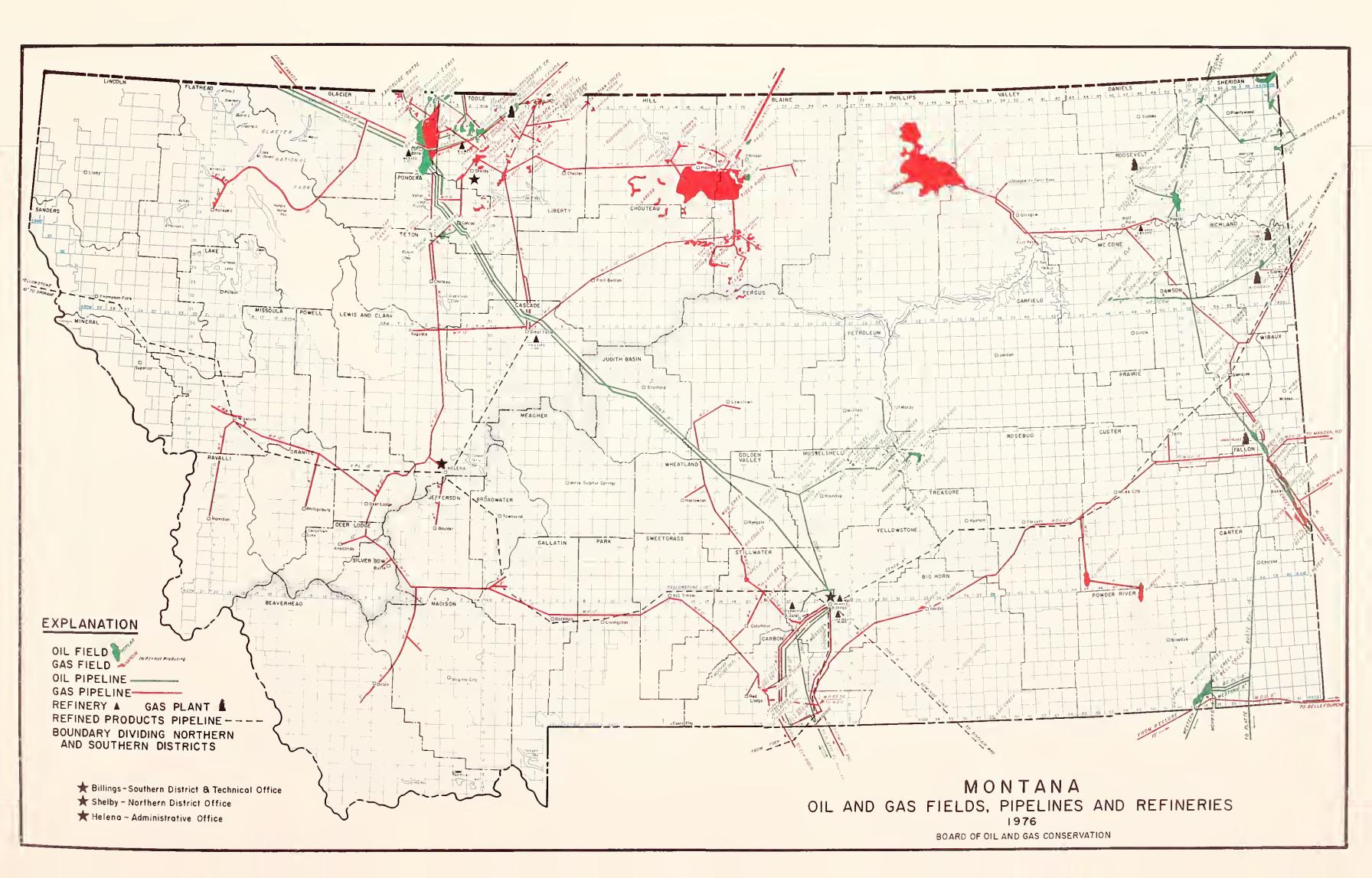
	3	Wells	Trap	Mechanism	Remarks	Water Disposal
SIOUX PASS, MIDDLE Red River (Ord.)		8	Structural	Water Drive	320-acre spacing units to consist of two contiguous governmental quarter sections at operator's option. Location to be no closer than 660' from exterior boundary of unit and no closer than 1650' from well producing from same foramtion. Commingling permissable with Administrative approval. (Order 55-76.)	None
SIOUX PASS, NORTH Interlake (Sit.) Red River (Ord.) Dual Winnipegosis (Dev.) Nisku (Dev.) Red River Ord.) Dual Red River (Ord.)	rd.) Dual ) Dual	m	Structural Water Drive	Unknown	320-acre spacing units with well location at least 660' from unit boundary. (Order 12-75.) Field enlarged (Order 16-75.) Commingling from Interlake and Red River approved (Order 36-74.) Refer to Order 35-75 for modification.	None
SNOOSE COULEE Bow Island (L. Cret.) Gas		4	Structural- Strat.	Volumetric	State-wide.	None
SNYDER Tensleep (Penn.)	(Shut-in)	ო ←	Structural	Water Drive	10-acre spacing units with center 5-spot permitted; 150' topographic tolerance. (Order 45-62.)	None
SOAP CREEK Tensleep, Amsden, Madison (Penn.) (Penn.) (Miss.)	(Shut-in)	20	Structural	Water Drive	One well per 10-acre spacing unit per producing formation; well location in center of spacing unit with 100' topographic tolerance. (Order 26-60.)	None
SPRING LAKE Nisku (Dev.) Red River (Ord.)	(Shut-in)	7 7	Structural Structural	Depletion Depletion	One well per 160-acre spacing unit. Well location anywhere within 840' square in center of spacing unit. (Order 6-63.) Field redelineation. (Orders 30-76, 49-76.)	None
SQUAW COULEE (Now included as part of Tiger Ridge Field.) (Order 10-70.0	ger					
STRAWBERRY CREEK Bow Island (I. Cret.) Gas Sawtooth (M. Jur.)		e –	Structural- Strat.	Volumetric Water Drive	State-wide.	None
STENSVAD Tyler (Penn.)	(Shut-in)	9	Strat.	Depletion	40-acre spacing units; well location in center of spacing unit with 200' tolerance. (Orders 2-59, 7-60.) Wells may be drilled anywhere within waterflood unit boundary, no closer than 660' from unit boundary. (Orders 5-65, Amended.)	A waterflood operation has been in progress since 1963, using Madison water. (Orders 48-67, 9-67.\$
SWANSON CREEK Phillips (U. Cret.) Gas	(Shut-in)	-	Strat.	Depletion	320-acre spacing units, well location SE NW each section. Wells no closer than 990' from unit boundary. (Order 36- 75.)	None

			Trap	Mechanism	Remarks	Water Disposal
TIGER RIDGE Judith River (U. Cret.) Gas (St Eagle (U. Cret.) Gas	10	103	Strat.	Depletion	40-acre spacing units; well located in center of unit with 75' F tolerance. (Order 14-58.) Field re-delineated (Order 14-75.)	Four waterflood units using Madison water. (Orders 48-67, 6-69, 15-69, 19-69, 3-70, 16-72,
	(Shut-in)	- 5	Structural- Strat.	Volumetric Water Drive	660' to unit (Order 11-72	24-74, 5-75.) Produced water disposed into Madison formation. (Order 7-A-76.)
	11 (Shut-in) 3	119 30	Structural- Strat.	Volumetric Water Drive	and 41-72.) Wells 990' from unit boundary. Originally one well per section within 2640' square incenter of each unit and no closer than 1320' from boundary of unit.	
Sawtooth (Jur.) Oil	(Shut-in)	-	Structural- Strat.	Water Drive	Changed to state-wide spacing by (Urder 10-70.) Enlarged and re-delineated (Order 13-75.) 160-acre spacing units in Sections 22, 23, 24, 32N-14E (Eagle and Virgelle) wells at least 990' from section line and 660' from quarter section line (Order 37-75.) (Exception to Order 37-75 by Order 29-76.)	(Orders 17-67, 23-68, 10-70.)
TIMBER CREEK Sunburst (L. Cret.) Gas (S	(Shut-in)	-2	Strat.	Depletion	320-acre spacing consisting of two adjacent governmental quarter sections lying N-S or E-W at operator's option. Permitted well no closer than 660' from spacing boundary and 990' from field boundary. (Order 24-75.)	None
TIMBER CREEK, WEST Sunburst (L. Cret.) Gas		<del>-</del>	Strat.	Depletion	640-acre spacing unit located no closer than 660' from unit boundary. (Order 91-76.)	None
TRAIL CREEK Sunburst (L. Cret.) Gas Bow Island (L. Cret.) Gas		2	Structural- Strat.	Water Drive Volumetric	One well per 320 acres consisting of S½ and N½ of each governmental section but no closer than 990′ from spacing boundary. (Orders 33-70, 28-76.)	None
TULE CREEK Nisku (Dev.)	(Shut-in)	- 5	Structural	Water Drive	160-acre spacing units with permitted well anywhere Pwithin 1320'square in center of each unit. (Orders 26-62, 6-65, 11-67.)	Produced water injected into Dakota and Judith River formations. (Orders 12-66, 24-67, 8-A-76.)
TULE CREEK, EAST Nisku (Dev.)		7	Structural	Water Drive	160-acre spacing units with permitted well anywhere vithin 1320's quare in center of each unit. (Orders 40-64, 6-65.)	Water injected into Judith River formation. (Order 13-68.)
TULE CREEK, SOUTH Nisku (Dev.)		ო	Structural	Water Drive	160-acre spacing units with permitted well anywhere A within a 1320' square in center of each unit. ((	Authority given to dispose of produced water into Dakota. (Order 44-64.) Into Judith River formation. (Order 29-67.)
UTOPIA Sawtooth (Jur.) Gas Madison (Miss.) (SI	(Shut-in)	<b>ო</b> ←	Structural	Depletion Water Drive	State-wide. Two wells produced small amount of oil from N Swift sand.	None

Field, Formation, Age	No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Water Disposal
VAUX Red River (Ord.)	-	Structural	Water Drive	State-wide.	None
VIDA Interlake (Sil.)	7	Structural	Water Drive	160-acre spacing units with permitted well anywhere within an 840' square in center of each unit. (Order 39-63.)	Water injected into Lakota formation. (Order 14-68.)
VOLT Nisku (Dev.) (Shut-in)	t-in) 5	Structural	Water Drive	160-acre spacing units with permitted well anywhere within a 1320' square in center of each unit. (Orders 27-64,	Excess produced water is disposed into Judith River. (Order
Charles "C" (Miss.)	-	Structural	Water Drive	6-65, 32-65.) State-wide.	3-65, 37-A-74.)
WAGON BOX Tyler (Penn.) (Shut-in)	t-in) 2	Structural- Strat.	Unknown	State-wide.	None
WEED CREEK Amsden (Penn.)	-	Structural	Water Drive	State-wide.	None
<b>WELDON</b> Kibbey (Miss.) (Shut-in)	3 t-in) 9	Structural	Partial Water Drive	80-acre spacing unit; each quarter section divided into two separate units running in either a north-south or east-west direction; well location in center of NE¼ and SW¼ of quarter section with 200° topographic tolerance. (Order 9-65.)	Excess produced water is disposed into the Dakota, Lakota, Morrison, and Charles formations. (Orders 31-65, 47-65, 37-
WEST BUTTE Sunburst (L. Cret.) Oil	<del>-</del>	Structural- Strat.	Depletion	State-wide, except W½ Section 16 is considered a single spacing unit.	ob, 10-67.) None
Sawtooth (Jur.) Gas Madison (Miss.) Gas	-	Structural	Water Drive	Sawtooth-Madison gas commingled, unitized. (Order 5-72.) No well closer than 330' from unit boundary.	
WEST REAGAN (See Reagan, West)					
WHITLASH Bow Island, Kootenai, Swift Oil (Cret.) (Jur.)	Oil 63	Structural- Strat.	Volumetric	Gas: 300' from legal subdivision line and 2400' between wells, 75' topographic tolerance.	None
(Shut-in) (Shut-in) (Miss.) Gas				5-spot from legal subdivision line and 650' between wells; 5-spot location at center of 40-acre tract permitted; 75' topographic tolerance. General Rules 207, 211, 219, 221, 223, and 224 suspended. (Orders 16-54, 27-70.)	
WHITLASH, WEST Sunburst, Swift (Shut-in) Oil (Cret.) (Jur.) Sawtooth (Jur.) (Shut-in)	Gas 9 (t-in) 1	Structural- Strat.	Volumetric	Gas: 160-acre spacing units consisting of quarter sections; well location anywhere within a 660' square in center of spacing unit. Oil: 330' from legal subdivision line, 650' between wells in	None
				same reservoir on same lease; 5-spot location permitted. (Orders 61-62, 22-65 as amended.)	

Field, Formation, Age		No. Prod. Wells	Type of Trap	Probable Drive Mechanism	Spacing Regulations, Field Rules, and Remarks	Secondary Recovery or Woter Disposal
WILLOW CREEK, NORTH Tyler (Penn.) Oil		7	Structural- Strat.	Depletion Water Drive	State-wide.	Pilotflood. (order 19-72.)
WILLOW RIDGE Bow Island (L. Cret.) Gas Burwash (Cret.) Oil	(Shut-in)	4 -	Structrual- Strat.	Volumetric	State-wide.	None
WILLS CREEK, SOUTH Interlake (Sil.)		7	Structural	Partial Water Drive	160-acre spacing units. Well location in center of SE¼ of each unit with 175' topographic tolerance. (Orders 5-64, 30-66.)	Waterflood initiated 12-1-73. (Order 23-73.)
WINNETT JUNCTION Tyler (Penn.)		ω	Strat.	Depletion Water DRive	20-acre spacing units. Units to be designated as $W\%$ and $E\%$ of quarter-quarter section, no closer than 120' to the boundary of a spacing unit. (Order 57-76.)	None
<b>WOLF SPRINGS</b> Amsden (Penn.)		- 7	Structural	Water Drive	80-acre spacing units consisting of NY <sub>2</sub> and SY <sub>2</sub> of each quarter section. Well location in center of NWV <sub>4</sub> and SEV <sub>4</sub> of each quarter section with 75' topographic tolerance. (Order 4-56, 9-59.)	None
WOODROW Charles, Duperow, Interlake Red River (Ord.)	(Shut-in)	4	Structural	Water Drive	80-acre spacing units consisting of any two adjacent quarter-quarter sections, well locations in center of NE% and SW% of each quarter section with 200; topographic tolerance. (Order 47-62.)	Produced water injected into Dakota. (Order 48-62.)
WRIGHT CREEK Muddy (L. Cret.)	(Shut-in)	r 7	Structural- Strat.	Depletion Water Drive	80-acre spacing consisting of N½ and S½ of quarter section with locations in NW½ and SE¼ of each quarter section with 200° tolerance.	None







_	STATE OF MIC	TELANA SI	DIVINIANT OF PRO	5001110		FIELD.		70		PRODUCT IVE		#ELUntan	MONTANA BOARD OF OIL AND GA	* CONSTRUCTION
LINE NO.	FIELD	COUNTY	PRODUCING FORMATION	YEAR OF OISCOVERY	ОЕРТН	GRAVITY OAPI F.1	NET PAY I.F. FT.	POROSITY (%)	Sw 0.0.1,P. (%) (BBLS/ACRE)	AREA 1-1-77 (ACRES)	0.0.1.P. (H BBLS.)	RECOVERY FACTOR (%) PRIMARY SECONDARY	CUMULATIVE ULTIMATE RECOVERY PRODUCTION RESERVES 197 (H BBLS.) 1-1-77 1-1-77 PRODUC PRIMARY SECONDARY TOTAL (H BBLS.) (H BBLS.) (BBLS.)	TION (BBLS./) (BBLS. LINE
1 2 3 4	Ash Creek Balnville Bears Den Bell Creek Benrud, East	filg Horn Roosevelt Liberty Powder River Roosevelt	Shannon (U.Cret.) Red River (Ord.) Sunburst (L.Cret.) Muddy (Cret.) Misku (Qev.)	1952 1969 1924 1967	4,500 10,300 2,300 4,400 7,500	34 1.0 45 1.1 39 1.0 36 1.1	75 38 38 20 11 10	22 15 12 26	42 13,200 34 16,680 35 11,210 23 13,990 30 13,080	200 320 200 16,000 480	2,640 5,340 2,240 223,840 6,280	25 8 8 23 26 26 54	650 180 830 748 82 8,788 450 450 310 140 14,705 520 520 416 104 10,750 58,000 58,000 116,000 86,299 29,701 8,750,163 3,400 3,400 2,032 1,368 142,531	24 4,150 296 1 40 1,410 37 2 29 2,600 130 3 23,910 7,250 725 4 389 7,080 322 5
6 7 8 9	Benrud, East Benrud, Mortheast Big Bend Big Gully Big Muddy Creek	Roosevelt Richland Musselshell Roosevelt	Nisku (Gev.) Nisku (Dev.) Red River (Ord.) Tyler (Penn.) Interlake (SII.)	1964 1976 1976	7,400 12,300 3,800 11,100	46 1.4 48 1.6 30 1.1	10 23 35 18 25 11	16 8 16 3	30 14,270 43 3,440 30 7,650 65 2,470	160 320 80 320	2,280 1,100 610 790	18 25 13	1,000 1,000 859 141 14,305 200 200 43 157 42,580 150 150 20 130 20,115 100 100 32 68 10,379	39 7,000 322 3 39 6,250 272 6 116 630 35 7 55 1,880 171 8 28 310 7 9
10 11 12 13	Big Muddy Creek Big Wall Big Wall Blackfoot	Roosevelt Musselshell Musselshell Glacier	Red River (Ord.) Amsden (Penn.) Tyler (Penn.) Cut Bank (L. Cret.)	1975 1953 1948 1955	11,900 2,500 3,000 3,500	48 1.1 19 1.1 31 1.1 30 1.1	01 17 02 22 11 15	16 17 15	36 4,450 35 13,580 40 17,070 35 10,220	960 280 1,220 160	3,800 20,830 1,640	33 19 29 2 26	1,400 1,400 540 860 254,379 720 720 639 81 8,594 6,000 500 6,500 5,998 502 55,968 420 1,200 1,054 1,36 1,8 978	695 1,460 133 10 23 2,570 151 11 153 5,330 242 12 52 2,630 125 13
15 16 17	Blackfoot Boulder Bowes Breed Creek Brorson	Glacier Richland Blaine Rosebud Richland	Madison (Miss.) Duperow (Dev.) Sawtooth (M. Jur.) Tyler (Penn.) Madison (Miss.)	1955 1976 1949 1976 1954	3,600 10,400 3,300 4,900 9,600	25 I. 46 2. 19 I. 32 I. 32 I.	30 11 02 37 10 20	14 22 12 16	40 4,530 16 6,860 31 23,300 30 17,380 40 6,650	480 160 3,760 80 1,120	2,170 1,100 87,610 1,390	36 18 8 3 25	7,200 200 85 115 84,610 7,200 2,300 9,500 8,104 1,396 126,411 350 350 19 331 19,084	231 1,250 114 15 345 2,530 68 16 52 4,190 210 17
19 20 21 22	Brorson Brorson, South Brush Lake Burns Creek	Richland Richland Sheridan Dawson	Red River (Ord.) Red River (Ord.) Red River (Ord.) Red River (Ord.)		12,600 12,600 11,400	48 1	70 20 70 20 50 30	10 12 14	40 6,650 35 5,930 30 7,670 35 14,120 40 7,300	1,440 480 2,240 320	7,450 8,540 3,680 31,630 2,340	48 9	1,100 1,100 765 335 34,269 2,100 2,100 1,796 304 52,575 1,750 1,750 976 774 66,114 3,000 3,000 1,652 1,348 119,784 200 200 135 65 9,028	94 980 25 18 144 1,460 73 19 181 3,650 183 20 327 1,340 45 21 25 630 45 22
23 24 25 26	Cabin Creek Cabin Creek Canal Cat Creek (Antelope-Masby)	Fallon Fallon Richland Garffeld	Madison (Miss.) Siluro-Ordovician Red River (Ord.) Kootenal (L. Cret.)	1956 1953 1970	7,300 9,000 12,700 1,200	33 1.3 33 1.3 47 2.0 52 1.	13 25 20 50 07 58	11 13 8	30 13.220 30 29.420 40 10.430 19 12.000	2,260 7,620 320 200	29,880 224,180 3,340 2,400	49 23 11 15 21 8	14,600 14,600 13,433 1,167 267,007 51,000 24,000 75,000 57,850 17,150 1,490,079 500 500 443 57 20,858 500 200 700 }	730 6,460 258 23 4,071 9,840 197 24 57 1,560 27 25 3,500 350 26
27 28 29 30	Cat Creek Cat Creek Cat Creek (West Dome) Cat Creek	Petroleum, Garffeld Petroleum, Garffeld Petroleum Petroleum	Morrison (U. Jur.) Ellis (U. Jur.) Kootenal (L. Cret.) Amsden (Penn.)	1945 1945 1920 1967	1,600 1,700 1,100 2,000	52 1.1 52 1.1 52 1.1 52 1.1	10 25 10 51 00 10	22 18 21 8	40 5,590 40 19,040 19 61,180 30 4,340	240 880 900 80	1,340 16,760 55,060 350	30 26 1 27 6 17 14	4,00 400 5,092 508 38,651 4,400 100 4,500 17,393 507 60,743 60 50 110 64 46 5,796	106 1,670 278 27 5,110 204 28 166 19,890 390 29 16 1,380 138 30
31 32 33 34	Charlie Creek Cow Creek Cow Creek, East Cupton Cut Bank Toole	Richland McCome McCome Fallon Glacier, Pondera	Nisku (Dev.) Charles (Miss.) Klbbey (Miss.) Red River (Ord.) Kootenai (L. Cret.)	1976 1969 1971 1955	9,900 6,800 6,300 9,600 2,900	42 1.6 40 1.3 35 1.6 38 1.3	15 15 25 40	6 8 15 12	35 2,270 48 6,720 35 10,810 30 20,850 35 12,490	320 240 720 1,600 49,000	730 1,610 7,780 33,360 612,010	9 45 5 20 5	100 100 2 99 2,375 150 150 102 48 5,251 3,500 3,500 1,219 2,281 278,754 1,700 1,700 1,021 679 100,454 122,500 32,500 155,000 139,381 15,619 2,036,072	6 310 52 31 14 630 25 32 762 3,410 227 33 274 1,060 27 34 5,563 3,160 176 35
37 38 39	Luc an Deer Creek Dwyer Elk Basin	Glac er Dawson Sherldan Carbon	Halison Hiss. Interlake (SII.) Ratcllffe (HIss.) Frontler (U.Cret.)	1956 1960 1915	3,000 9,400 8,000 1,200	3 43 1.1 37 45	10 20 38 32 38	7 11 21	10 910 30 12,040 56 10,810 20 33,710	3, 200 320 3,840 120	22.10 3,850 41,510 4,050	34 11 4 37 8	1,300 7,500 1.00 100 9,760 4,500 1,700 6,200 5,514 686 123,240 1,500 300 1,800 1,527 273 20,548	27 4,060 107 37 337 1,610 42 38 56 15,000 500 39
40 41 42 43	Elk Basin Elk Basin Elk Basin, Horthwest Fairview	Carbon Carbon Carbon Richland	Tensleep (Penn.) Hadison (Hiss.) Tensleep (Penn.) Winnipegosis (Dev.)		5,000 5,300 6,000 11,500	28 1. 37 1. 43 1.	15 27 10 27	12 12 7	9 169,430 22 17,050 30 9,330	920 580 160	114,940 155,880 9,890 1,490	9 6 10 4 23	54,000 54,000 51,106 2,894 482,390 14,000 9,500 23,500 17,908 5,592 568,810 1,000 400 1,400 1,211 189 36,301 350 350 259 91 9,732	1,318 38,570 311 40 1,554 25,540 114 41 99 2,410 89 42 27 2,190 81 43
45 46 47 48	Falrylew Fertile Prairie Flat Coulee Flat Lake Flat Lake, South	Alchland fallon Liberty Sheridan Sheridan	Red River (Ord.) Red River (Ord.) Swift (U. Jur.) Ratcliffe (Miss.) Ratcliffe (Miss.)	1965 1952 1933 1964 1966	12,700 9,300 2,900 6,500 6,500	47 1.7 29 1.7 37 1.33 1.33 32 1.33	10 6 10 18 16 14	11 14 21 15 12	28 12,650 27 3,960 35 17,330 45 7,110 45 3,660	1,920 400 1,280 9,600 1,120	24,290 1,580 22,180 68,260 4,100	19 10 35 13 11 14 7	4,500 2,500 7,000 4,848 2,152 3467,739 550 550 410 140 16,606 2,800 2,400 5,200 2,832 2,368 124,704 9,300 5,100 14,400 9,693 4,707 612,805 1,700 1,700 883 817 22,166	947 3,640 104 44 40 1,380 230 45 341 4,060 226 46 1,674 1,500 107 47 61 1,520 169 48
50 51 52	Fort Gilbert Four Bile Creek Francie Fred & George Creek	Richland Richland Carbon Toole	Red River (Ord.) Red River (Ord.) Tensleep (Penn.) Sunburst (L. Cret.)	1970 1975 1928 1963	12,500 12,500 2,700 2,600	48 1.4 47 1.5 27 1.6 39 1.3	39 42 50 35 <u>-</u> 12 29 10 31	12 15 19 27	20 16,550 35 17,650 16 35,200 30 37,880	640 320 80 880	10,590 <u>5,640</u> 2,820 33,330	12 9 27 23 20	1,300 1,300 975 325 62,799 500 500 38 462 33,944 750 750 694 56 8,258 7,700 6,700 14,400 8,959 5,441 434,403	172 2,030 48 49 93 1,560 45 50 23 9,380 323 51 1,187 16,360 528 52
54 55 56	Fred & George Creek Gas City Clendive Goose Lake Graben Coulee	Toole Dawson Dawson Sheridan Glacler	Swift (U. Jur.) Red River (Ord.) Red River (Ord.) Retcliffe (Miss.)	1963 1955 1952 1962 1961	2,700 8,900 8,900 7,000 2,900	39 I. 38 I. 38 I. 34 I.	28 25 25 147 20 40	14 12 8	30	840 2,800 1,280 6,880 470	4,650 33,100 60,720 128,110	28 26 6 22 6 1 36	1,300 1,300 1,102 198 48,304 8,600 2,000 10,600 8,552 2,048 192,783 11,500 13,500 10,476 3,024 241,489 8,000 1,200 9,200 6,442 2,758 265,780 1,500 1,500 1,178 322 61,110	132 1,550 194 53 527 3,790 152 54 660 10,550 72 55 729 1,340 34 56 167 3,190 266 57
	Gumbo Ridge Hay Creek Hay Creek	Rosebud Richland Richland Musselshell	Sunburst, Cut Bank, Madison Tyler (Penn.) Red River (Ord.) Hission Canyon (Miss.) Tyler (Penn.)	1975	4,900 12,600 9,600 5,000	34 I. 32 I. 46 I.: 39 I.	10 16 90 53 15 40	12 13 12 5	30 8,890 35 9,540 25 19,480 30 9,450 30 19,270	240 640 160	4,180 2,290 12,470 1,510 6,940	26 8 13	1,500 1,500 1,178 322 61,110 600 600 192 408 122,679 1,000 1,000 820 180 32,692 200 200 142 58 9,648 1,500 1,500 1,182 318 49,161	167 3,190 266 57 335 2,500 156 58 89 1,560 29 59 26 1,250 31 60 134 4,170 123 61
62 63 64 65	lvanhoe Jim Coulee Keg Coulee Keg Coulee, North	Musselshell Musselshell Musselshell Musselshell	Tyler (Penn.) Tyler (Penn.) Tyler (Penn.) Tyler (Penn.)	1956 1971 1960 1964	4,100 3,700 4,600 4,600	33 1.0 33 1. 33 1. 33 1.	08 29 10 37 15 19	15 15 14 12	20 25,000 33 26,230 32 12,200 32 7,710	600 840 1,320 120	15,000 22,030 16,100 930	27 17 9 20 17 43	4,000 4,000 3,818 182 30,015 3,800 2,000 5,800 2,540 3,260 489,808 4,400 2,700 7,100 4,532 2,568 142,135 400 400 281 119 19,591	82 6,670 230 62 1,338 6,900 186 63 388 5,380 283 64 54 3,330 238 65
	Kelley Kevin-Sunburst Laird Creek Leary Little Braver	Musselshell Toole Liberty Powder River Fallon	Tyler (Penn.) Madison, Sunburst (Miss,-L.Cret.) Swift (U. Jur.) Huddy (Cret.) Red River (Ord.)	1966 1922 1968 1969	4,400 1,500 2,800 5,800 8,300	33 1.1 32 1.0 39 1.1	10 14	13 20 16 17	30 30,690 35 6,540 25 13,030 33 5,380 35 15,990	200 40,200 480 240 2 390	6,140 262,910 6,250 1,290 38,220	8 27 10 4 31	70,000 10,000 80,000 71,856 8,144 33,651 550 250 800 443 357 21,122 400 400 247 153 47,033 6,500 4,500 11,000 7,610 3,390 45,6260	95 5,000 100 69 928 1,990 284 67 58 1,670 119 68 129 1,670 239 69 1,247 4,600 124 70
72 73	Little Beaver, East Little Wall Greek Lone Butte Lonetree Greek	Fallon Musselshell Richland Richland	Red River (Ord.) Tyler (Penn.) Red River (Ord.) Red River (Ord.)	1954 1970 1974 1970	8,300 3,700 12,400 12,500	30 1.1 33 1. 45 1.1 47 1.1	10 40 70 14 36 19	13 15 11	35 10,490 33 28,350 30 4,920 30 6,100	1,600 520 640 2,240	16,780 14,740 3,150 13,660	23 14 22 13 22	3,900 2,300 6,200 4,066 2,134 148,285 3,250 3,250 1,110 2,140 319,342 400 400 165 235 51,164 3,000 3,000 1,790 1,210 192,248	405 3,880 162 71 873 6,250 156 72 140 630 45 73 525 1,340 71 74
	Lookout Butte Lookout Butte Melstone Monarch Nohly	Fallon Fallon Musselshell Fallon Richland	Mission Canyon (Miss.)  Red River (Ord.)  Tyler (Penn.)  Siluro-Ordovician  Red River (Ord.)	1961 1961 1948 1958 1972	8,000 8,900 4,300 8,400 12,900	26 I. 33 I. 34 I. 32 I. 46 I.	09 25 10 31	10 15 15 7	35 11,600 25 11,380 30 18,680 35 9,950 40 8,790	1,920 6,100 440 2,240 640	22,270 69,420 8,220 22,290 5,630	8 1 19 13 24 22 2 21	1,700 300 2,000 1,464 536 39,257 13,000 9,100 22,100 15,574 6,526 592,846 2,000 2,000 1,690 310 31,946 4,900 500 5,400 3,679 1,721 159,702 1,200 1,200 667 533 102,065	107 1,040 40 75 1,620 3,620 241 76 87 4,550 182 77 436 2,410 78 78 279 1,880 70 79
80 81 82 83	Otls Creek Outlook Outlook Outlook	Sheridan Sheridan Sheridan Sheridan	Red River (Ord.) Siluro-Devonian Ouperow (Dev.) Winnipegosis (Dev.)	1970 1956 1964 1971	9,000 8,200 9,000	38 1. 39 1. 39 1.	78 23 12 20 50 15 12 18	12 8 10 8	35 7,820 30 7,760 25 5,820 30 6,980	960 1,600 640 480	7,510 12,420 3,720 3,350	10 46 40 24	750 750 385 365 89,203 5,700 5,700 5,336 364 82,223 1,500 1,500 1,074 426 79,486 800 800 444 356 116,633	244 560 68 80 225 3,560 178 81 217 2,340 156 82 319 1,670 93 83
85 86 87	Outlook, South Outlook, West Pennel Pennel Pennel	Sherldan Sherldan Fallon Fallon	Winnipegosis (Oev.) Winnipegosis (Oev.) - Siluro-Ordovician Mission Canyon (Miss.)	1957 1958 1955 1957 1960	9,100 9,100 8,800 7,000 7,500	39 1. 39 1. 33 1. 31 1.	12 16 14 25 10 38	8 8	30 6,980 30 6,210 35 12,160 30 5,630 35 10,710	240 320 22,380 720 320	1,680 1,990 272,140 4,050 3,430	24 33 11 8 17 20	4.00 4.00 3.28 72 9.929 650 650 526 124 14.681 31.000 21,800 700 54,200 35,035 19,165 2.773.592	27 1,670 93 84 40 2,030 127 85 2,360 94 86 7,578 970 26 87 2,190 73 98
	Pondera Poplar, East Poplar, East	Fallon Pondera Roosevelt Roosevelt	Lodgepole (Miss.) Siluro-Ordovician Modison (Miss.) Hadison (Miss.) Heath (Penn.)	1952 1927 1952 1969	8,400 2,100 5,500 4,900	34 1. 34 1.	17 32 20 15 10 25	12 16	30 17,820 31 10,710 30 13,580 50 3,100	13,320 5,560 18,070 480	237,360 59,550 245,390 1,490	24 20 42 18 20	57,000 48,000 105,000 83,407 21,593 2,265,634 25,000 25,000 20,593 4,407 291,074 45,000 45,000 41,702 3,298 430,128 300 300 220 80 7,563	6,193 7,880 246 89 795 4,500 300 90 1,175 2,490 100 91 21 630 79 92
93 94 95 96	Poplar, East Poplar, Northwest Putnam Rabbit Hills	Roosevelt Roosevelt Richland Blaine	Nisku (Dev.) Madison (Miss.) Siluro-Ordovician Santooth (Jur.)	1969 1952 1969	7,300 6,300 11,900 4,000	21 1,	10 16 75 16 15 12	8 10 9	50 2,660 45 6,210 30 4,470 16 12,240	320 1,200 320 800	7,450 1,430 9,800	29 20 42 6	250 250 193 57 7,834 1,500 1,500 690 810 163,469 600 600 503 97 17,293 600 600 262 338 57,650 3,000 1,150 4,150 2,410 1,740 136,932	21 780 65 93 447 1,250 78 94 47 1,880 118 95 158 750 54 96 374 3,050 235 97
98 99 100	Ragged Point Raymond Raymond Raymond Raymond	Musselshell Sheridan Sheridan Sheridan Sheridan	Tyler (Penn.) Nisku (Dev.) Duperow (Dev.) Winnipegosis (Dev.) Red River (Ord.)	1956 1972 1972 1972	3,600 7,900 8,400 9,300		+0 22	14 8 13 5	32 8,650 50 4,880 29 9,070 10 11,940 27 15,790	1,360 320 160 480	11,760 1,560 1,450 5,730 2,530	26 10 58 41 21	900 900 375 525 71,896 600 600 326 274 43,807 1,200 1,200 640 560 78,234 155 155 155 4,001	196 2,810 128 98 120 3,750 170 99 214 2,500 63 100 11 1,250 38 101
103 104 105	Raymond, Northeast Raymond, Northeast Reagan Red Creek	Sheridan Sheridan Glacier Glacier	Winnipegosis (Dev.) Red River (Ord.) Madison (Miss.) Cut Bank (Cret.)	1974 1974 1947 1958	9,300 10,200 3,700 2,600	39 1. 30 1. 38 1. 31 1.	14 12 38 30 10 11 38 20	13 15 12	50 5,310 50 12,650 30 6,520 30 19,110	160 160 2,520 770	850 2,020 16,430 14,170	12 5 33 5 15 2	100 100 45 55 10,825 100 100 59 41 23,824 5,400 1,600 7,000 5,969 1,031 151,079 2,250 250 2,500 2,082 418 46,229	30 630 53 102 65 630 21 103 413 2,780 253 104 126 3,250 163 105 189 5,470 171 106
106 107 108 109 110	Red Craek Redstone Repeat Reserve Richey, Southwest	Glacier Sheridan Carter Sheridan McCone	Madison (Miss.) Winnipegosis (Dev.) Red River (Ord.) Red River (Ord.) Siluro-Ordovician	1958 1958 1956 1966 1952	2,800 9,400 8,600 11,100 9,200	28 1, 42 1, 23 1,0 39 1,1	10 34 02 25 30 18	13 8 10 6	30 20,540 30 13,430 30 13,310 30 4,510 30 9,630	640 160 160 960 1,160	13,150 2,150 2,130 4,330 11,170	27 23 18 15	500 500 407 93 11,975 500 500 432 68 11,515 800 800 650 150 25,329 1,700 200 1,900 1,837 63 12,869	33 3,130 92 107 31 3,130 125 108 69 830 46 109 35 1,640 61 110
111	Rosebud Rush Mountain Salt Lake Sand Creek	Rosebud Sheridon Sheridan Dawson	Tyler (Penn.) Red River (Ord.) Nisku (Oev.) Red River (Ord.)	1974 1968 1970 1959	5,000 12,000 7,900 9,000	34 1. 39 1.1 43 1.5 19 1.	24 32 52 14 50 23 10 25	14 10 11	48 14,550 33 4,490 35 8,510 40 8,950	160 320 480 880 960	2,330 1,440 4,080 7,880 6,260	24 35 10 29	550 550 249 301 68,877 500 500 297 203 21,347 400 400 227 173 28,082 2,300 2,300 2,131 169 35,337 700 700 389 311 94,354	188 3,446 108 111 56 1,550 111 112 77 830 3 113 97 2,610 104 114 258 730 24 115
117 118 119	Second Creek  S Our ass Sloux Pass, Hiddle Sloux Pass, North Soap Creek	Richland R c and Richland Richland Big Horn	Red River (Ord.) S uro-Or ov cian Red River (Ord.) Siluro-Ordovician Tensleep,Amsden,Madison (PennM)	1974	12,700 2,70 12,600 12,000 1,900	46 1.45 1.45 1.45 1.45 20 1.4	70 10 10 17 50 44	16 12 15	35 25 40 15,360 35 14,410	1,920 640 1,920 340	20,5 0 3,620 29,490 4,900	17 7 49	- 3,000 3,000 1.75 2 321,75 600 600 86 514 86,166 2,100 2,100 595 1,505 230,752 2,400 2,400 1,905 495 57,345	79 140 39 117 235 940 55 117 630 1,090 25 118 157 7,060 353 119
121 122 123	Spring Lake Stensvad Sumatra Tule Creek	Richland Husselshell Rosebud Roosevelt	Red River (Ord.) Tyler (Penn.) Tyler (Penn.) Nisku (Oev.)	1963 1958 1949 1960	11,700 5,500 4,500 7,500	51 2.0 33 1. 32 1. 46 1.4	00 9 17 25 16 30 +1 25	12 14 19 15	30 2,930 20 18,570 35 24,780 30 14,440 30 15,350	900 1,600 5,520 1,160 400	2,640 29,710 136,790 16,750 6,140	28 27 13 24 10 48 34	750 750 631 119 17,780 8,000 4,000 12,000 10,181 1,819 236,653 33,500 13,500 47,000 32,192 14,808 2,019,813 8,000 8,000 6,873 1,127 164,338 2,100 2,100 1,926 174 20,568	49 830 92 120 547 7,500 300 121 5,519 8,510 284 122 449 6,900 276 123 56 5,250 175 124
124 125 126 127 128	Tule Creek, East Tule Creek, South Vaux Vida Volt	Roosevelt Roosevelt Richland McCone Roosevelt	Nisku (Oev.) Nisku (Oev.) Red River (Ord.) Interlake (SII.) Nisku (Oev.)	1964 1964 1976 1963 1964	7,500 7,600 12,400 9,300 7,300	51 1.4 47 1.4	60 24 60 33 60 14	12 14 2 20	30 3,720 45 8,960 56 1,610 30 10,860	320 320 800	1,490 2,870 520 8,690	5 58 31	700 700 627 73 15.367 150 150 11 139 10.902 300 300 262 38 3.931 2,700 2,700 1,971 729 109.867	42 1,750 219 125 30 470 20 126 11 940 28 127 300 3,380 241 128
129 130 131 132	Weldon Whitlash Willow Creek, North Wills Creek, South	McCone Llberty Busselshell Fallon	Kibbey (Miss.) Swift, Sunburst (JurCret.) Tyler (Penn.) Interlake (\$11.)	1964 1927 1970 1964	5,900 2,600 4,000 8,700	39 1.0 38 1. 32 1. 33 1.	01 14 13 15 20 12 20 12	16 16 13 18	35 11,180 20 13,180 54 4,640 35 9,080 30 10,660	1,560 1,950 160 320 200	17,440 25,700 740 2,910 2,130	41 19 34 !4 32 16	7,100 7,100 6,917 183 41,050 5,000 5,000 3,777 1,223 172,163 250 100 350 235 115 14,646 900 900 732 168 18,770 350 350 193 157 36,191	112 4,550 325 129 470 2,410 161 130 40 2,980 183 131 51 2,810 234 132 99 1,750 146 133
133 134 135 136 137	Winnett Junction Wolf Springs Woodrow Wright Creek Hiscellaneous Fields	Musselshell Yellowstone Dawson Powder River	Tyler (Penn.) Amsden (Penn.) \$11mro-Ordovician Muddy (Cret.)	1973 1955 1952 1969	2,500 6,200 9,600 4,800	28 1. 30 1. 42 1. 35 1.	07 11 30 25	6 14 26	30 10,660 23 3,680 35 13,580 4,770	3,840 460 480	2,130 14,130 6,520 2,290	33 17 11	4,600 4,600 4,494 106 13,574 1,100 1,100 960 140 18,665 250 250 182 68 10,243 2,017 425,317	37 1,200 109 134 51 2,290 92 135 28 520 104 136 1,162 137
-77	TOTALS												232,500 32,814,620	89,656



# GENERALIZED STRATIGRAPHIC CORRELATION CHART

SHOWING PRODUCTIVE FORMATIONS IN MONTANA OIL AND GAS FIELDS \*

MONTANA BOARD	OF OIL AND G	AS CONSERVATION						IL			,				CHARLES G. MAIO, GEOLOGIST —	- JUOSON	N O SWEET, PETA	OLEUM ENGINEER	
ERA	PERI	SOUTHWESTERN CRAZY	MOUNTAIN BASIN	BIG HORN BASIN	SOUTH CENTRAL MONTANA	CENTRAL MONTANA		SWEETGRASS ARCH		NORTH CENTRAL MONTANA	<u> </u>	NORTH POWOER RIVER BASIN	WILLIS BAS			PE	RIOO	ERA	
CENOZOIC	TERTIARY	8EAVERHEAD TO	NGUE RIVER LEBO TULLDCK	FDRT UNIDN		FORT TONGUE RIVE	R			FORT UNION	500	ORT TONGUE RIVER UNION LEBO	FORT TONG						
	CRETACEDUS	SHALE MONTANA 6	HELL CR.  LENNEP  BEARPAW  JUDITH RIVER  CLAGGETT  GLE VIRGELLE  LEGRAPH CR.  BRARA-CARLILE  FRONTIER	MEETEETSE  MESA VERDE  CDDY SHALE  FRONTIER  • ELK BASIN, NW ELK BASIN, CLARKS FORK.	HELL CREEK  DOWN BEARPAW  JUDITH RIVER  CLAGGETT  CLAGGETT  CAGGETT  CAGGET	HELL CREEK  FDX HILLS  BEARPAW  JUDITH RIVER  CLAGGETT  E BASIN.  E BASIN.  NO  MIDBRARA-CARLIL  OFFENHORN		WILLDW CREEK ST. MARY RIVER HORSE THIEF BEARPAW JUDITH RIVER CLAGGETT WEAGE EAGLE TELEGRAPH CREEK MARIAS RIVER SHALE	KINYON COULFE.	HELL CREEK  FOX HILLS  BEARPAW  JUDITH RIVER  JUDITH RIVER  JUDITH RIVER  JUDITH RIVER  JURGELLE  TELEGRAPH CREEK  NIOBRARA-CARLILE  GREENHDRN  BELLE FOURCHE	BROWN'S COULEE, CDAL COULEE, BULLWACKER,	HELL CREEK  FOX HILLS  BEARPAW  JUDITH RIVER  CLAGGETT  E AGLE  SHANNON  TELEGRAPH CREEK  INDBRARA-CARLILI  GREENHDRN  BELLE FOURCHI		HILLS W  IVER  APH CREEK A-CARLILE	ÇCEDAR CREEK, RLEVNA ÇCEDAR CREEK	UPPER	CRETACEDUS		
MESOZOIC		CDLDRADD CDLDRADD COLORADO COL	DAK SILT  DAKOTA  LAKOTA  DAKOTA  DAKOTA  DAKOTA  DAKOTA	MORRISON	MOWRY  MUDDY  SKULL CREEK  DAK. SILT  DAKOTA  DRY CREEK, MDSSER  FUSON  DRY CREEK  MORRISON  SWIFT	MORRISON	● CAT CREEK, IVANHOE	FORMATION OO O	## EAST KEITH, FLAT COULEE, RATTLESMAKE COULEE, ALMA  WHITLASH, GRANDVIEW, SOUTH DEVON, BERTHELOTE  © EVON, HAYSTACK BUTTE, PRITCHARD CREEK, ARCH APEX.  SDUTH CONRAO, MIDDLE BUTTE, WEST REAGAN  GRANDVIEW, WEST BUTTE, CUT BANK, XEVIN-SUNBURST, FLAT  COULEE, SHELBY, TRAIL CREEK, E-KEITH  BLACKFOOT, CUT BANK, REO CREEK, WHITLASH, GRABEN COULEE,  MININGS COULEE, RATTLESMAKE COULEE,  BEARS DEN, KEVIN-SUNBURST, WHITLASH W. BLACK JACK, MININGSCOULEE,  PRITCHARD CR. BERTHELOTE, FRED E GEORGECREEK, BRADT, BORDER  THILER'S COULEE.  THILER'S COULEE.	BDW IS (MUDDY)  SKULL CREEK  BASAL CDLO. SILT  DAKOTA  KDDTENAI		MOWRY MUDDY (NEWCASTLE SKULL CREEK  BASAL COLD. SILT DAKOTA FUSON (KOOTENA LAKDTA  MDRRISON	BASAL CI DAKE  TUSON  LAKE	CREEK DLO SILT DTA KOOTENAI)		LOWER		MESOZOIC	
	JURASSIC	NODAS SISSEN	RIERDDN S	LOWER SUNDANCE	RIERDON  SOWES  PIPER BOWES  FIREMOON TAMPICO	RIERDON	DOMES)	RIERODN SAWTOOTH	BANNATYNE, KEVIN-SUNBURST, WHITLASH, FLAT COULEE, GRANOVIEW, LAIRD CREEK, ARCH AREX, FRED & GEORGE, HURSE CRK.      KEVIN-SUNBURST.      WHITLASH, KEITH, RUOYARO, UTOPIA, FLAT COULEE, WEST BUTTE, BEARS DEN, KICKING HORSE, BIK JACK, MINERS COULEE, ALMA, CANADIAN COULEE	MODULAN SANGE		SUNDANCE  GYPSUM SPRING	W.S. D.S. CROUP STAIR S. CROUP	BOWES		UPPER	JURASSIC		
									MINERS COULEE, ALMA, CANADIAN COULEE		RABBIT HILLS.		NESSON	KLINE PICARD POE					
	TRIASSIC	LOWER ?  THAYNES  LOWER ?  WDDDSIDE  DINWOODY  DINW		CHUGWATER DINWOODY	CHUGWATER DINWDODY							CHUGWATER SPEARFISH		SALIDE		LOWER?	TRIASSIC		
	PERMIAN	PHOSPHORIA PHOSP	MBAR	PHOSPHORIA • ELX BASIN, NW ELX BASIN.	PHOSPHORIA							MINNEKAHTA OPECHE	MINN	EKAHTA			PERMIAN		
							\$ MUO CREEK												
	PENNSYLVANIAN	AMSDEN A	MSDEN	TENSLEEP • ELK BASIN, FRANNIE, NW ELK BASIN, SNYDER.	TENSLEEP AMSDEN	AMSDEN ALASKA BENG	BIG WALL, DELPHIA, GAGE, HIBBARD, SUMATRA, WOLF SPRINGS, POLE CREEK, WEED CREEK,  COTCREEK,  OTTOREST					MINNELUSA					PENNSYLVANIAN		
	MISSISSIPPIAN	BIG SNDWY B SN	BIG SNOWY CHARLES SION CANYON DDGEPOLE	MADISON • ELK BASIN, NW ELK BASIN.	MADISDN	TYLER	HIRWATHA, INJUNI CREEK, RÄGGED POINT, BIG WALL, SUMATRA,     WANNING, KYE COULEE, EN ESTONE, JUNE OF CHECK PSTENSAGE     NOWARD COULEE, SHEEPHERDER, ROSEBUD, GUMBO ADA     OEVILS BASIN BIG GULLY, RATTLER BUTTE  RAGGED POINT	MISSION CANYON	REAGAN, PONDERA COULEE, LANOSLIDE BUTTE, PONDERA GRANDVIEW, KICKING HORSE, KEITH, WHITLASH, MT LILLY, UTOPIA, BEARS DEN, MIGHWIEW BANNATYNE, BLACKFOOT, CUTBANK, KEVIN-SUNBURST, WEST BUTTE, REO CREEK, GYPSY BASIN, GRABEN COULEE	MISSION CANYON		CHARLES  CHARLES  MISSION CANYON  LDDGEPDLE	SDAP CREEK Z. CHAF	REATH ITER BBEY RLES CANYON EPDLE KEN	WELDON, EAST COW CREEK  FLAT LAKE, SHOTGUN CREEK, SMOKE CREEK, KATY LAKE, DWYER, POPLAR, RICHEY, PRAIRIE ELK, COW CREEK, VOLT MINERAL BENCH, GAS CITT, GOOSE LAKE, RIPRAP C. SUDAYE, BRORSON, CABIN CREEK, MONARCH, PENNEL, POPLAR, OUTLOOK, HARDSCRABELE CREEK, SHOTGUN CREEK, SOUTH FLAT LAKE, SIOUX PASS.  PINE, PENNEL, LODKOUT BUTTE, SALT LAKE.		MISSISSIPPIAN		
PALEOZOIC	DEVONIAN	UPPER JEFFERSON (	FDRKS TO THE SKU THE SK	DUPEROW  DUPEROW  ARTDOTH BUTTE	JEFFERSON  BEARTOOTH BUTTE	OUPERD SOURIS RIVER		THREE FORKS POTLATCH NISKU DUPERDW SOURIS RIVER	∜ KEVIN-SUNBURST	THREE FORKS  NISKU  DUPERDW  SOURIS RIVER		VEFFERSON GROUP	THREE !	ROW	TULE CREEK, BENRUO, E BENRUO, LONE TREE, SPRING LAKE, NEBENRUO, VOLT, SO TULE CREEK, E TULE CREEK, BED FOLSALT LAKE, CHELSEA CREEK, RAY- MOND THE LEVEL SHALL LAKE, CHELSEA CREEK, RAY- MOND THE LAKE, THE LAKE, CHELSEA CREEK, RAY- MOND THE LAKE, THE LAKE, CHELSEA CREEK, RAY- RESERVE, RUSH MOUNTAIN, RAYMOND, NE. RAYMOND N. SIOUX PASS	UPPER MIDDLE	DEVONIAN	PALEOZOIC	
	SILURIAN										INTERLAKE		INTERLAKE	INTERL	AKE •	BIG MUDDY CREEK SIOUX PASS, N. SIOUX PASS, OEER CREEK, MONARCH, OUTLOOK, PENNEL, PINE, SAND CR. SW RICHEY, CABIN CR., LOOKOUT BUTTE, WILLS CR. WOODROW, VIDA, RESERVE.		SILURIAN	
	DRODVICIAN	BIG HORN BIG HI	DRN	BIG HORN LANGER GROVE CREEK	LEIGH BIG HORN	RED RIVER	_			RED RIVER		STONY MTN.  RED RIVER  BIG HORN  WINNIPEG  LOWER ORDOVICIAN	RED RI	VER	GLENDIVE, LOOKOUT BUTTE, RENNEL, WOODROW, BURNS CR, NOHLY RAYMOND, SECOND CREEK, SOUDFON, CABIN CH, DEER CR, GLENDIVE, LITTLE BEAVER, LITTLE BEAVER, LITTLE BEAVER, MONARCH, OUTLOON, PENNEL, PINE REPEAT, SAND CR, WILLS CR, FERTILE, PRAIRE, LOOKOUT BUTTE, WOODROW, RESERVE, GAS CITY, FAIRVIEW, BRORSON, RUSH MTN., SPRING LAKE, BRUSH LAKE, BAINEVILLE, CULBERTSON, FRDIO, HAY FOREK, IGHARD, CANAL, FT. GILBERT, OTIS CR., LONETREE.	LOWER	ORDDVICIAN		
	CAMBRIAN	UPPER RED LIDN GRI PILGRIM SNO PARK MEAGHER N SILVER HILL WOLSEY	DVE CRÉEK DVY RANGE PILGRIM PARK MEAGHER WOLSEY LATHEAD	GROVE CREEK  GALLATIN  GROS VENTRE  FLATHEAD	GROVE CREEK GALLATIN GROS VENTRE FLATHEAD	PILGRIM PARK MEAGHER WOLSEY FLATHEAD		DEVIL'S GLEN DOL.  SWITCHBACK SMALE STEMBDAT LIMESTONE PAGODOL LIMESTONE DEARBORN LIMESTONE GORDON SHALE SLATHEAD		CAMBRIAN	G	ADVE CREEK ALLATIN GROS OF ANO VENTRE	DEADWOOD		SIOUX PASS, N. SIOUX PASS, LONE BUTTE, NE. RAY- MONO, BIG MUOOY CREEK, MONDAK WEST, MIDDLE SIOUX PASS.	UPPER MIDDLE LOWER	CAMBRIAN		
PROTEROZOIC	PRE-CAMBRIAN	BELT	BELT		BELT	BELT		MISSOULA KINTLA ARGILLITE  SIYEH PURCELL LAVA GR'P. LOPER SIYEH SPOKANE SH LOWER SIYEH RAV. GRINNEL SH ALLI APPEKUNNY QT GR'P ALTYN LS									PRE-CAMBRIAN	PROTEROZOIC  ARCHEOZOIĈ	
	L			METAMORPHIC	AND		IGNEOUS		ROCKS						N COME SIEL OF CHANNIA OF COME	AID LONGE			
														+	* SOME FIELDS SHOWN ARE DEPLETED DR	ND LUNGER	PRODUCTIVE,		





